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COMMONWEALTH BUREAU OF ANIMAL HEALTH

THE

VETERINARY BULLETIN

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DISEASES CAUSED BY BACTERIA AND FUNGI

SMITH, J. MACLEAN & DUBOS, R. J. (1956). **The effect of nutritional disturbances on the susceptibility of mice to staphylococcal infections.**—*J. exp. Med.* **103,** 109-118. [Authors' summary modified.] **1847**

The susceptibility of mice to i/v injection of coagulase-positive haemolytic staphylococci was estimated by (a) observing the extent and time of mortality of infected animals; (b) determining the number of colonies of cocci that could be cultivated from the liver and spleen at various intervals after infection. Fasting for 36–48 hours before infection increased susceptibility, which was further increased by allowing the mice to drink a 5% glucose solution instead of water or saline during the fasting period. In contrast, sodium lactate partially corrected the effect of fasting. Mice prevented from gaining weight for several weeks either by restriction of daily food intake, or by administration *ad libitum* of inadequate diet, appeared as resistant to infection as control mice.

KOLESOV, S. G. & BORISOVICH, Y. F. (1955). **[Obtaining strains of *B. anthracis* for the purposes of vaccino-prophylaxis.]**—*Trud. nauchno-kontrol. Inst. vet. Preparatov.* **5,** 5-11. [In Russian.] **1848**

A study of the properties of vaccines prepared from 15 different strains of *B. anthracis,* with emphasis on the technique used for testing them.—F. A. ABBEY.

VAN NESS, G. & STEIN, C. D. (1956). **Soils of the United States favorable for anthrax.**—*J. Amer. vet. med. Ass.* **128,** 7-9. **1849**

A map of the U.S.A. is given which shows the distribution of neutral and alkaline soils considered favourable for maintenance of anthrax infection.—M.G.G.

LABZOFFSKY, N. A. (1955). **Experiences with a new antigen for a complement fixation test in tuberculosis.**—*Canad. J. Microbiol.* **1,** 794-798. **1850**

The organism is treated with pyridine, washed and resuspended in saline, and finally exposed to ultrasonic vibration. Such an antigen is not anti-complementary and appears to be specific. In human patients, a fall in antibody titre is associated with clinical improvement.—THOMAS MOORE.

I. BOYDEN, S. V. & SORKIN, E. (1955). **A study of antigens active in the tannic acid hemagglutination test present in filtrates of culture of *Mycobacterium tuberculosis*.** — *J. Immunol.* **75,** 15-21. **1851**

II. SORKIN, E. & BOYDEN, S. V. (1955). **A study of antigens active in the Middlebrook-Dubos hemagglutination test present in filtrates of culture of *Mycobacterium tuberculosis*.**—*Ibid.* 22-27. **1852**

I. & II. A proper study of the immune response to *M. tuberculosis* infection, or vaccination, necessitates the evaluation of the antibodies against the different antigens. These papers are preliminary studies of the tests and the specificities of the antigens utilizable for measuring antibodies.

The first paper is an account, in the tannic acid test, of different chemical fractions from culture filtrates; a comparison of the relative activities of the preparations; and a study of the antigenic interrelationships. The second paper is an account of the "haemosensitins" (substances which become adsorbed on to r.b.c. rendering them sensitive to agglutination by antibodies to the adsorbed substances) in tuberculin.

The papers are much summarized, but out of numerous fractions examined for their ability to sensitize tanned r.b.c. to agglutination by rabbit antisera prepared from phenol-killed tubercle bacilli, *four* active fractions from unheated culture filtrates were found to be completely distinct serologically and showed

little cross-reaction in contrast to the P.P.D. preparations and other fractions, from heated culture filtrates.

In experiments using fractions made in various ways from both heated and unheated culture filtrates for their capacity to sensitize r.b.c. to agglutination by rabbit antisera, no evidence was found for the existence of more than one sensitizing substance among all the heated preparations. Cross-inhibition with unheated fractions revealed 2 different sensitizers. One had the same specificity as that of the heated preparation, the other was precipitated by saturated $(NH_4)_2SO_4$ aq. soln. while the heat stable component remained in the supernatant.—MALCOLM WOODBINE.

HELLMANN, E. & KÖSSLINGER, E. (1955). Zur Frage der Eignung der Mikrokultur für die Untersuchung tuberkulösen Materials. **[Suitability of micro-culture for the examination of tuberculous material.]** — *Rindertuberkulose*. **4,** 247-252. **1853**

Tuberculous material from cattle, dogs, goats, pigs, poultry and man was examined by the micro-culture method. Growth was observed after 5·6 days of avian type tubercle bacilli, after 6·1 days of human type and after 7·7 days of the bovine type. The micro-culture method, for diagnostic purposes, has no advantages over the slide-culture method.

—F. K. LEEB.

SCHMITTHENNER, W. (1955). Trächtigkeit und Tuberkulinhautreaktion. **[Pregnancy and the intradermal tuberculin test.]**—*Rindertuberkulose*. **4,** 259-267. **1854**

A discussion on the relationship between pregnancy and the occurrence of doubtful reactions to the i/d tuberculin test in TB.-free herds, based on tests on 594 pregnant cows.

—M.G.G.

GRAY, D. F. & JENNINGS, P. A. (1955). **Allergy in experimental tuberculosis.**—*Amer. Rev. Tuberc.* **72,** 171-195. [French and Spanish summaries.] **1855**

Swelling of the foot after local injection or death after i/p injection of tuberculin is considered indicative of allergy in mice. Reaction to tuberculin developed between the 4th and the 9th week after infection and allergy persisted for 4 to over 30 weeks. Mice may die before becoming allergic or after ceasing to be allergic, and death was associated with anergy but not with an increase in the number of stainable bacilli in the lesions, although viable counts showed a definite increase in the number of bacilli in the lungs in the terminal stages.—T.E.G.R.

FRITZSCHE, K. (1956). Weitere Ergebnisse mit der modifizierten BCG-Schutzimpfung bei Kälbern. **[Further results with modified B.C.G. vaccination of calves.]**—*Zbl. Vet-Med.* **3,** 63-74. [English, French and Spanish summaries. English summary slightly modified.] **1856**

Increased doses of B.C.G. vaccine adsorbed on aluminium hydroxide increased the effectiveness of the vaccine. Revaccination with this vaccine 2 years after the first dose appeared to give protection for an additional year. The double tuberculin test using bovine tuberculin and a B.C.G. tuberculin was of some value in distinguishing vaccinated animals from animals which had acquired infection after vaccination.

SMITH, D. W. & KUBICA, G. P. (1955). **Comparison of extracts of tubercle bacilli and BCG as immunizing agents in guinea pigs.** —*Proc. Soc. exp. Biol., N.Y.* **90,** 629-635. [Authors' summary modified.] **1857**

Significant resistance was induced by 1 mg. of B.C.G., given s/c. Comparable resistance was induced by 0·1 mg. (in adjuvant) of a crude chloroform extract, and also by tubercle bacilli which had been exhaustively extracted with neutral organic solvents. The immunizing potency of such defatted bacilli was completely destroyed by extraction with alcohol-ether containing 3% hydrochloric acid and only partially by autoclaving for 20 min. The ability of defatted bacilli to induce delayed hypersensitivity was also destroyed by removal of firmly bound lipids with alcohol-ether containing HCl.

WEISS, D. W. & DUBOS, R. J. (1956). **Anti-tuberculous immunity induced by methanol extracts of tubercle bacilli—its enhancement by adjuvants.**—*J. exp. Med.* **103,** [Abst. from authors' summary.] **1858**

Weight for weight, the protective activity of methanol extract is less than that of killed tubercle bacilli, but its primary toxicity for mice is also considerably lower. An oil adjuvant mixture, and small amounts of a highly purified preparation of typhoid somatic antigen enhanced and prolonged immunity. Under appropriate conditions the resistance resulting from i/p injection of methanol extract was as good as that from vaccination with killed tubercle bacilli or with living B.C.G.

BOISVERT, H. (1955). La culture des mycobactéries sur gélose nutritive, son intérêt relatif pour différencier les bacilles tuberculeux et paratuberculeux. [**Differentiation of mycobacteria by growth on an agar medium.**]—*Ann. Inst. Pasteur.* **88,** 84-95. **1859**

Human type *M. tuberculosis* grew readily at first on agar medium, but failed to adapt itself over several subcultures. The appearance of the human and the bovine types grown on this medium was similar to that of the growth on egg media, but S strains of the bovine type reverted temporarily to the R form. The murine and avian types gave only scanty growth. Of 39 other types of mycobacteria examined, most grew rapidly. Two strains of *M. johnei* that had been maintained on timothy grass media failed to grow on agar. Identification from the growth on agar can only be tentative.—A. SEAMAN.

RAC, R. (1955). **An examination of the ileo-caecal nodes of apparently normal cattle in South Australia for** *Mycobacterium johnei*.—*Aust. vet. J.* **31,** 301-302. **1860**

The ileo-caecal lymph nodes of 355 dairy cattle were examined histologically and culturally for the presence of *M. johnei,* with negative results. It is assumed that Johne's disease is not present in South Australia as a sub-clinical disease.—R. BARRY.

RANKIN, J. D. (1955). **An attempt to prevent the establishment of** *Mycobacterium johnei* **in calves by means of isonazid alone and in combination with streptomycin.** — *Vet. Rec.* **67,** 1105-1107. [Author's summary modified.] **1861**

Iso-nicotinic acid hydrazide, both alone and with streptomycin, failed to prevent *M. johnei* from establishing itself in calves after experimental infection. At P.M. examination of the intestine, histological methods gave more positive results that did cultural methods.

SCHOENAERS, F. & KAECKENBEECK, A. (1955). Sensibilité *in vitro* du *C. pyogènes* (pyobacille) aux antibiotiques. [**Sensitivity** *in vitro* **of** *Corynebacterium pyogenes* **to antibiotics.**]—*Ann. Méd. vét.* **99,** 532-538. **1862**

The sensitivity of 22 strains of *C. pyogenes* to seven antibiotics was tested *in vitro,* using the tube dilution method. The medium used was serum glucose broth, with brom-thymol blue indicator, and the production of acid was taken to indicate growth. Penicillin, chloramphenicol and terramycin were the most effective in inhibiting growth. —M. B. HAWKSLEY.

ENGLERT, H. K., BAUER, H. & GÖBEL, F. (1956). Neue Gesichtspunkte über Vorkommen, Ursachen und Behandlung der Gesäugeaktinomykose bei Mutterschweinen. [**Mammary "actinomycosis" in sows.**] — *Tierärztl. Umsch.* **11,** 42-44. **1863**

A non-haemolytic strain of *Corynebacterium pyogenes* which does not liquefy serum and is non-pathogenic for mice was isolated from most cases of actinomycosis of the udder in sows. The ordinary haemolytic type of *C. pyogenes* was isolated from a few cases, together with staphylococci and streptococci. Drug and antibiotic therapy often fails to effect a complete cure and the authors recommend surgical removal of the lesions in non-pregnant sows and up to half way through gestation. They mention 18 cases and give brief details of the technique. A publication dealing with the aetiology is pending.—E. G. WHITE.

FECHNER, J. (1955). Experimentelle Untersuchungen an Schweinen über das Wesen der Rotlaufschutzimpfung unter besonderer Berücksichtigung der Fehlerquellen. [**Experiments on pigs concerning the priniciples of immunization against swine erysipelas, with special reference to sources of error.**]—*Wiss. Z. Humboldt-Univ.* **4,** 181-207. [English, French and Russian summaries.] **1864**

From tests in pigs of various methods of vaccination, to assess the incidence of vaccination erysipelas and breaks in immunity, F. concluded that:— Cultures with a low virulence for pigs may safely be used for vaccination even in large concentrated doses without serum. Inoculation with virulent cultures can produce vaccination erysipelas, but the severity of reactions is diminished by the simultaneous injection of antiserum. There is no appreciable difference in the efficacy of serum from horses and pigs. The dose of vaccine has no influence on the quality of the immunity produced, if given without antiserum. If fresh cultures are used in adequate doses, the immunizing action of vaccine is only slightly reduced by the simultaneous use of serum. The level of immunity obtained with adsorbate-vaccine is only slightly lowered by the simultaneous injection of homologous antiserum, but with horse serum it may be appreciably diminished.—F. K. LEEB.

RICE, C. E., BEAUREGARD, M. & MAYBEE, T. K. (1955). **Survey of shipping fever in Canada: serological studies.**—*Canad. J. comp. Med.* **19,** 329-349. **1865**

Of 9,410 cattle transported by rail 2,093 were inoculated beforehand with a killed culture of *Pasteurella septica,* 4,062 were treated with antiserum and 3,255 were left untreated as controls. On arrival 49 of the vaccinated, 266 of the antiserum treated cattle and 177 of the controls were ill and 10, 38 and 30 respectively were dead. *Past. septica* Type C and *Past. haemolytica* were isolated, singly or together, from the lungs of the dead animals.—A. GREIG.

MURA, D. & MANCA, A. (1955). Sulla mastite infettiva primitiva da Pasteurella nelle pecore. **[Primary *Pasteurella* mastitis in sheep.]**—*Vet. ital.* **6,** 1003-1028. [English, French and German summaries.] **1866**

The authors describe three outbreaks of pasteurella mastitis in sheep in Sardinia, involving from 12–18% of the affected flocks. The disease was a unilateral suppurative mastitis, with a very low mortality rate, and was not associated with generalized infection. Polyvalent hyperimmune serum and formolized vaccine gave good results in prophylaxis and therapy. The causal organism was pathogenic for rabbits but not for g. pigs; when inoculated into healthy sheep, it reproduced the disease exactly. The authors have classified the infecting agent as *Past. mastitidis.*—I. W. JENNINGS.

SCHULZE, W. & HIEPE, T. (1956). Die Behandlung der Schafmastitis mit Masticillin. **[Treatment of mastitis in sheep.]**—*Tierärztl. Umsch.* **11,** 22-23. **1867**

Intramammary injection into the affected half of the udder, of penicillin combined with streptomycin or with the sulphonamide preparation "marbadal", repeated twice at 12-hourly intervals, is a useful treatment for ovine mastitis. Only two of 52 treated animals developed gangrene of the udder. In all except 5 of the ewes which recovered there was a complete return to anatomical and functional activity of the udder.—F. K. LEEB.

STEFFAN, H. (1955). Zur Therapie des ansteckenden Schnupfens der Hühner (coryza contagiosa). **[Treatment of infectious coryza in fowls.]**—*Tierärztl. Umsch.* **10,** 291-293. **1868**

Medication of the drinking water with aureomycin was an effective treatment for infectious coryza of fowls, when accompanied by hygienic measures. Severe cases were treated by the local application of aureomycin solution or ointment, or by the intramuscular injection of 100–200 mg. dihydrostreptomycin sulphate.—F. K. LEEB.

BORNSTEIN, S. & SAMBERG, Y. (1955). **[The therapeutic effect of streptomycin on infectious coryza of chickens caused by *Hemophilus gallinarum*. VI. *In vitro* sensitivity of *H. gallinarum* to sulfathiazole, sulphamezathine and penicillin.]**—*Refuah vet.* **12,** In Hebrew: pp. 194-202. In English: p. 237. **1869**

Sodium sulphathiazole was bactericidal only after 3 days at levels of less than 125 mg./100 ml. It was bacteriostatic at 6·2 – 50 mg./100 ml. for the 13 strains tested, whereas sodium sulphadimidine was bacteriostatic at levels ranging from 6·2 – 1,000 mg./100 ml. This explains why, even though sulphadimidine is reported to give higher blood levels, sulphathiazole gives better field results. Penicillin was bacteriostatic at 0·3 – 2·5 units/ml. and bactericidal at 3·2 – 62·5 units/ml., but in an *in vivo* test on 4 infected birds treated with 1 mega unit, only one recovered; the other 3 showed only temporary improvement.

—A. SEAMAN.

MALYAVIN, A. G. (1955). **[Serum against *Bact. coli* infection and paratyphoid in calves, with anti-toxic and anti-bacterial properties.]**—*Trud. nauchno-kontrol. Inst. vet. Preparatov.* **5,** 151-159. [In Russian.] **1870**

M. prepared a bivalent serum against *Bact. coli* and *Salmonella enteritidis* by hyperimmunizing the animals used for serum production with the combined bacterial antigens plus alum. A dose of 0·25–0·5 ml. of the serum protected g. pigs from a lethal dose of *S. enteritidis.* The serum was said to have high therapeutic and prophylactic value in calves and other farm animals.—F. A. ABBEY.

DHANDA, M. R., LALL, J. M. & SINGH, M. M. (1955). **Studies on *Salmonella abortus equi* vaccine.**—*Indian J. vet. Sci.* **25,** 245-253. **1871**

A formol-killed alum-precipitated vaccine was found safe for ponies when injected i/m, unlike the heat-killed phenolized vaccine formerly used which occasionally caused toxic effects on s/c injection. In mice challenged with lethal doses of *S. abortus-equi,* the for-

molized vaccine conferred a higher degree of immunity than the heat-killed vaccine.

—R. N. Mohan.

Bergsma, C., Driessen, J. & Van Keulen, A. (1956). Een Salmonella-bareilly-infectie bij het paard. [*Salmonella bareilly* **infection in the horse.**] — *Tijdschr. Diergeneesk.* **81,** 31-34. Discussion pp. 250-251. [In Dutch. English, French and German summaries. Abst. from French summary.] **1872**

S. bareilly was isolated from the liver, kidney, spleen and muscle of a mare and from the blood and faeces of her foal. The authors suggested that infected fowls were the source of infection. In discussion on the paper, W. J. Roepke refuted this suggestion.—T.E.G.R.

Löliger, H.-C. (1956). Über Salmonellosen beim Nerz. [*Salmonella* **infection in mink.**] —*Berl. Münch. tierärztl. Wschr.* **69,** 31-32. [English summary.] **1873**

Bacteriological examination of 1,602 carcasses received from mink-farms throughout Germany revealed *Salmonella* infection in only 25 (1·6%). The usual agents were *S. typhi-murium* and *S. enteritidis.* There were 3 cases of *S. infantis* and one of *S. london* infection, both recorded in Germany for the first time.—M.G.G.

Imai, N., Kamimura, T., Izumi, K., Yokoyama, K. & Iwanaga, T. (1955). **[Studies on variability of immune reactions in the course of** *Salmonella pullorum* **infection. II. On the influence of its intravenous inoculation upon "the maintainers of lower agglutinin titers" for it.]**—*Sci. Rep. Azabu vet. Coll., Japan.* No. 2. pp. 17-38. [In Japanese. Abst. from authors' English summary.] **1874**

In a limited experiment on birds with a low agglutinin titre (1 : 40) it was observed that i/v inj. of *S. pullorum* caused chronic infection in some cases and acute septicaemia with death in others. In survivors egg laying was adversely affected and infection was found in the eggs. Agglutinin titres followed the course of infection.—T.E.G.R.

Harry, E. G. (1955). **The application of aerosols to atmospheric and surface disinfection in the poultry industry. I. The disinfection of surfaces and dust deposits using the Microsol aerosol generator.** — *Vet. Rec.* **67,** 1109-1116. [Authors' summary modified.] **1875**

The use of an aerosol generator was described, and its application to disease control in hatcheries, broiler houses and other farm buildings was discussed. It was shown that the mode of action of aerosols depends to a large extent on their physical properties. An aerosol of large particle size composed of 6 parts "ibcol" and four parts triethylene glycol when generated in a concentration of 4 fl. oz. per 100 sq. ft. deposited a dust-adhesive disinfectant film on horizontal surfaces. The film retained its adhesive properties for at least one month on non-absorbent surfaces, and its disinfecting activity was only sightly reduced after 17 days. It also had marked disinfecting activity on *S. pullorum* infected dust. An aerosol of small particle size composed of formalin, which was applied at a concentration of 2 fl. oz. per 100 cu. ft. air space, produced a minimum reduction of 99·8% in the numbers of *S. pullorum* on the interior surfaces of an incubator room.

Mair, N. S. (1955). **A selective medium for the isolation of** *Brucella abortus* **from herd samples of milk.** — *Mon. Bull. Minist. Hlth Lab. Serv.* **14,** 184-191. **1876**

A medium containing polymyxin B sulphate, penicillin, actidione and gentian violet detected 80·7% of samples of bulk milk from infected herds giving a positive ring test, as compared with 85·3% by g. pig inoculation. Results could be obtained within a few days and even very low levels of infection found. Penicillin-susceptible strains were inhibited, however, and serious contamination of the medium sometimes occurred.

—M. B. Hawksley.

van Drimmelen, G. C. (1955). **Mass cultivation of micro-organisms with reference to brucella vaccine against contagious abortion in cattle.**—*S. Afr. J. Sci.* 309-316. **1877**

An account of the technique and apparatus used for the production of *Br. abortus* Strain 19 vaccine at Onderstepoort. Shake-flask cultures were employed and the medium contained peptone, glucose, phosphate and yeast extract. This method had certain advantages over the use of potato-infusion agar under South African conditions. The author suggested that tank cultures might be even more advantageous for the production of this vaccine.—R.M.

Sulitzeanu, D., Jones, L. & Stableforth, A. W. (1955). **Protective action of monospecific anti-*Brucella* sera in mice.**—*Nature, Lond.* **175,** 1040-1041. **1878**

Monospecific anti-*Brucella* sera were shown to be immunologically specific in mice, in contrast with non-absorbed sera which protected against heterologous challenge.

—M.G.G.

JELLISON, W. L. & COLES, G. M. (1955). **Tularemia in sheep and in sheep industry workers in western United States.**—*Publ. Hlth. Monogr.* No. 28. pp. 17. [Washington, D.C.: *U.S. Dep. Hlth, Educ. & Welf.*] **1879**

An account of a survey of tularaemia in sheep in the U.S.A. and Canada, associated with *Dermacentor andersoni*, together with a detailed account of serological diagnosis of the disease in 189 sheep industry workers.

—E.V.L.

LYUBASHENKO, S. Y., IVANOV, B. G. & TYULPANOVA, A. F. (1955). **[Clinical and anatomical characteristics of spontaneous and experimental leptospirosis in horses.]**—*Veterinariya, Moscow.* **32,** No. 12, pp. 14-20. [In Russian.] **1880**

An account of the symptoms and P.M. findings in 12 yearling foals, which died 45–182 days after infection with cultures of various serological types of leptospira or material from 6 horses with spontaneous infection. The main features were intermittent fever, anaemia, generalized jaundice, degenerative and atrophic changes in the organs, and general debility. They resembled closely those of Žd'ár (or Schweinsberg) disease of horses in Czechoslovakia. Spontaneous cases were also observed in the Novgorod region.

—R.M.

BAXTER, J. T. & PEARSON, J. K. L. (1956). *Leptospira icterohaemorrhagiae* **infection in calves in Northern Ireland.**—*Vet. Rec.* **68,** 6-8. [Authors' summary modified.] **1881**

L. icterohaemorrhagiae infection in a 2-month-old calf is described. The organism was isolated from the carcass by g. pig inoculation. Six young cattle on the farm were tested for specific agglutinins and 5 revealed titres varying from 1 : 30 to 1 : 1000. The 6th had previously shown evidence of clinical disease, but this was not proved to be leptospirosis. The sera were negative for *L. pomona, L. canicola, L. grippo-typhosa* and *L. mitis*. The infection in g. pigs and the histology of affected g. pig tissues are described

BRYAN, H. S. (1955). **Studies on leptospirosis in domestic animals. V. experimental antibiotic therapy in chronic bovine leptospirosis.** —*Vet. Med.* **50,** 349-352. **1882**

Penicillin, streptomycin and aureomycin, singly, and combinations of terramycin and streptomycin and of penicillin and bacitracin were used in the treatment of 41 cows with *L. pomona* infection. In no case was there any material improvement.—T.E.G.R.

RYLEY, J. W. (1956). **Leptospirosis in swine.** —*Aust. vet. J.* **32,** 4-11. **1883**

Leptospirosis of swine, particularly its experimental reproduction with *L. pomona,* is reviewed. Symptoms are negligible in non-pregnant pigs; in sows infected in mid-pregnancy abortions and birth of dead or weak piglets are a feature. In 40% of aborted foetuses and stillborn piglets, focal hepatic necrosis and serous exudation in body cavities are present. The common lesion in older pigs is interstitial nephritis. High serum titres give little indication of how long a pig has been infected. Leptospiruria may be prolonged and has important epidemiological implication.

—R. BARRY.

KEAST, J. C., FORBES, B. R. V. & WANNAN, J. S. (1956). **Serological survey of pigs in New South Wales for leptospirosis and the incidence of swine abortion.** — *Aust. vet. J.* **32,** 11-16. [Discussion 16-17.] **1884**

A serological survey was conducted on 487 pigs from New South Wales. At maximum titre, the percentage of reactions to *L. hyos* was 6% and to *L. pomona* 25%. 108 of these sera were from herds in which abortions were occurring, and no less than 94% and 87% reacted to either *L. pomona* or *L. hyos* at titres of at least 1 : 300. The incidence of infection in herds without a history of abortion was 13%.—R. BARRY.

WANNAN, J. S. (1955). **Leptospiral serotypes in Australasia.**—*Aust. vet. J.* **31,** 297-301. **1885**

Eleven distinct serological types of leptospira have been recorded to date in Australia. *L. icterohaemorrhagiae* from man, rat and dog; *L. canicola* from man only; *L. australis A* and *L. australis B* from man and rat; "Robinson" type from man only; *L. pomona* from man, pig, sheep, cattle and dog; members of the hebdomadis serological group *(L. medanensis,* "Szwajizak" type, and "Kremastos" type) and "Celledoni" type from man only; and *L. hyos* syn. *L. mitis* from man, pig and possibly cattle. Five have at least one animal reservoir; for the others no animal

reservoir has been found, although antibodies for these serological types have been recorded in animals. There is strong serological evidence for the presence of *L. grippotyphosa,* which has yet to be isolated in Australia.—R. BARRY.

SMITH, D. J. W. & SELF, H. R. M. (1955). **Observations on the survival of *Leptospira australis* A in soil and water.**—*J. Hyg., Camb.* **53,** 436-444. [Authors' summary modified.] **1886**

Soil from a sugar-cane farm in North Queensland was experimentally infected either with a culture of *L. australis A* or by rats, *Rattus rattus,* known to be excreting leptospires in their urine. After periods of 8 to 43 days, the soil was flooded with rain water, which was subsequently examined for leptospires by treating g. pigs according to the "subcutaneous stream" technique.

Leptospires survived in culture-infected soil for 43 days and in urine-infected soil for 15 days prior to flooding. They were recovered from the water up to 24 days after flooding. The infected soil was of pH 6·1–6·2; its moisture content, where determined, was 34 and 37%, and the prevailing temperature 20° to 29°C. The reaction of the infected water samples ranged from pH 6·6 to 7·6. The possible significance of these findings in relation to the epidemiology of leptospirosis in North Queensland was discussed briefly.

COX, C. D. (1955). **Hemolysis of sheep erythrocytes sensitized with leptospiral extracts.**—*Proc. Soc. exp. Biol., N.Y.* **90,** 610-615. [Author's summary modified.] **1887**

Leptospiral extracts sensitized sheep r.b.c. to the haemolytic (HL) action of homologous and heterologous leptospiral antiserum and complement. The HL procedure was described; it was broadly specific, in contrast with the high degree of type specificity in the agglutination-lysis procedure. In comparison with HL titrations, the haemagglutination reaction also had broad specificity but was considerably less sensitive than the HL reaction. All 3 procedures were compared in a study involving 580 human sera. The HL procedure warrants further study as a screening method for leptospiral antibodies in human sera.

TERSKIKH, V. I., KOKOVIN, I. L. & BORODINA, L. T. (1955). **[A new spirochaete, *Interspira suilla* n.sp.]**—*Veterinariya, Moscow.* **32,** No. 12, pp. 66-67. [In Russian.] **1888**

The authors observed in the urine and urethras of unthrifty pigs a spirochaete which differed morphologically from *Leptospira, Borrelia* and *Treponema.* They named it *Interspira suilla* n.sp. It was 10 μ long and 0·3 μ wide, with a slight spiral and a pronounced hook at one end, having a radius of 1·2 μ. About 100 organisms were observed in each microscopic field of stained smears of urine and urethral mucosa from 26 out of 44 unthrifty pigs on one farm and from 11 out of 12 on another. Simultaneous infection with *Leptospira* and *Interspira* was observed: the serum of such pigs agglutinated the former but not the latter. Two healthy pigs excreted *Interspira* in the urine for a long time after material containing these organisms was introduced into the urethra. Pure cultures of the organism have not yet been obtained.—R.M.

VOLIK, E. K., NIKOLAEVA, E. Y. & ZHURAVLEVA, L. V. (1955). **[Production of vaccine by the vat method against *Cl. chauvoei* infection.]**—*Trud. nauchno-kontrol. Inst. vet. Preparatov.* **5,** 195-200. [In Russian.] **1889**

An account of the production of vaccines from anaerobic organisms by using a vat for all stages of preparation. With *Cl. chauvoei* the addition of 0·2–0·3% glucose to the nutrient medium after 72 hours of culture, when growth has practically ceased, promoted further growth which continued as long as the pH did not fall below 6. The concentration of organisms in the vaccine was thereby increased and the formation of spores was hindered.—F. A. ABBEY.

ROTH, F. B. & PILLEMER, L. (1955). **Purification and some properties of *Clostridium welchii* type A theta toxin.**—*J. Immunol.* **75,** 50-56. **1890**

This toxin is an oxygen-labile haemolysin, reversibly activated by some reducers such as sodium sulphite, sodium hydrosulphite and cysteine, and yet closely related to the oxygen-labile lysins of *Streptococcus pyogenes, Str. pneumoniae* and *Cl. tetani.* As the mode of action on r.b.c. and role in *Cl. welchii* infections are unknown, an attempt was made to isolate and characterize the toxin. The toxin was determined by the amount, 1 haemolytic unit (HU) haemolysing 50% sheep r.b.c. under standard conditions, and was purified by a 6-step methanol fractionation up to 2,450,000 HU per mg. protein N. The toxin was activated (from 12,000 to 332,000 HU) by the reducing substances, and hydrogen peroxide

and potassium ferricyanide destroyed even any residual haemolytic activity. Inhibition due to iodoacetic acid and *p*-chloromercuribenzoate was reversed by cysteine. The toxin was not adsorbed on the r.b.c.; its activity was maximal at 37°, pH 6·8; it was toxic in 5 min. intravenously with m.l.d. of 300 units in reduced form and 2,500 in oxidized form. Although positive proof of the enzymic nature awaits identification of the substrate, the facts that $2{\cdot}5 \times 10^{-6}$ mg. protein could lyse 6 ml. of 0·25% sheep r.b.c. in 30 min. at 37°C.; that sulphydryl compounds activated it, and that this was dependent upon pH and temp., suggest that it is an enzyme.

—Malcolm Woodbine.

Lyaushkin, A. V. (1955). **[Vaccination against clostridial infections in sheep.**—*Trud. nauchno-kontrol. Inst. vet. Preparatov.* **5,** 184-194. [In Russian.] **1891**

A combined vaccine was prepared from *Cl. septicum, Cl. oedematiens,* and *Cl. welchii* Type C. It protected 75–100% of lab. animals against artificial infection with each organism injected s/c, and conferred complete protection on sheep which had been inoculated twice with the vaccine, except in the case of *Cl. welchii,* where some breakdowns in immunity were observed following challenge. Blood, 0·5 ml., from sheep inoculated 12 days previously, protected mice from lethal doses of each of the clostridia. Preliminary results of field trials involving 2,526 vaccinated sheep showed that all remained healthy, while some cases of clostridial infection had occurred among unvaccinated controls.—F. A. Abbey.

Brooks, M. E., Sterne, M. & Betty, R. W. (1956). **Occurrence of *Clostridium sordellii* in Great Britain.**—*Vet. Rec.* **68,** 121-122. [Authors' summary copied *verbatim.*] **1892**

Cl. sordellii and *Cl. sordellii* toxin were identified in the gut contents of a heifer suspected of having died of enterotoxaemia.

Lemétayer, E., Nicol, L., Girard, O., Corvazier, R., Cheyroux, M. & Reculard, P. (1955). Quelques considérations sur l'injection de rappel dans la vaccination antitétanique chez le cheval. Existence possible d'une " phase négative". **[The "booster" dose in tetanus immunization of horses. Possibility of a negative phase.]**—*Bull. Acad. vét. Fr.* **28,** 425-436. **1893**

Of 36 horses immunized against tetanus and injected with a "booster" dose of 10 ml. of toxoid after 12 months, 10 maintained their initial titre of circulating antibodies during the first 4–5 days, 7 had a decrease in titre, but in 19 no antibodies could be detected in the serum from 12 to 48 hours after the injection until the 4th to 6th day. In further tests on 200 horses such a negative phase occurred in 51·8%, in about one third of which there was total disappearance of circulating antibodies. Of 24 horses given a "booster" dose of 5 ml. or of 2·5 ml. of toxoid, only one, which had had a relatively low initial level of immunity, had a decrease in antibody titre. In 30 cattle tested the negative phase was much less marked. Of some 100 human beings tested none underwent a negative phase. The authors suggested that the "booster" dose should not exceed 5 ml. for horses and cattle and that alum or tapioca should not be used except for the initial inoculations.—F.E.W.

Lápcevic, E. (1954). L'intoxication des chevaux par le botulisme. **[Botulism in the horse.]**—*Bull. Off. int. Epiz.* **42,** pp. 507-513. [English summary.] **1894**

Of 115 horses on a State farm in Yugoslavia 45 showed signs of a severe intoxication and of these 29 died. On investigation a decomposed carcass of an animal (of unknown species) was found in the silage which was being fed to the horses. *Cl. botulinum* toxin Type D was demonstrated in one of the samples of silage examined. A diagnosis of botulism was based on the isolation of *Cl. botulinum* Type D from the carcass found in the silage and the demonstration of Type D toxin in a filtrate of carcass material.—T.E.G.R.

Prévot, A.-R. & Sillioc, R. (1955). Une énigme biologique: chat et botulisme. **[A biological enigma: resistance of cats to *Cl. botulinum* toxin.]**—*Ann. Inst. Pasteur.* **89,** 354-357. **1895**

It is suggested that the cat is a carrier of *Cl. botulinum* Type C β and that the toxin is elaborated after death in the carcass. The resistance of the cats to the disease could not be explained: neither humoral nor tissue antibodies were detected, and although the nervous system could rapidly fix the toxin and the liver and bile detoxicate it, this did not appear to be a complete answer.

—M. B. Hawksley.

Trilenko, P. A. (1956). **[Complement-fixation test for the diagnosis of *Vibrio fetus* infection**

in cattle.] — *Veterinariya, Moscow.* **33,** No. 2, pp. 70-77. [In Russian.] **1896**

In the slow complement-fixation test developed at the Leningrad Veterinary Research Institute, the serum was diluted with physiological saline, inactivated by heating at 63° for 30 min., and then mixed with the antigen and the complement. This mixture was kept for 16–18 hours at 0° to 4°. It was then allowed to regain room temp. before the haemolytic system (sheep erythrocytes + haemolytic serum + haemolysin), which had also been kept at 0° to 4° for 16–18 hours, was added. The result was read after heating the final mixture at 37° to 38° for 20 min. A formolized suspension of *V. fetus* was used as antigen. The technique of the test is described in detail, with 4 tables.

The authors compared the results obtained by this test with those obtained by the ordinary c.f. test, the blood agglutination test, and the vaginal mucus agglutination test. The ordinary c.f. test was much less sensitive than the slow c.f. test: out of 260 cows on infected farms, 14 reacted to the former and 46 to the latter. Uniform results were obtained with the slow c.f. test and the vaginal mucus agglutination test, but in cows with chronic infection the tests did not always agree. Their simultaneous use permitted more exact diagnosis in heifers and in acute outbreaks of the disease. The slow c.f. test could also be used for examining serum from bulls.—R.M.

WILLETT, E. L., OHMS, J. I., FRANK, A. H. BRYNER, J. H. & BARTLETT, D. E. (1955). **Nonreturn rate and embryonic mortality from inseminations by bulls with *Vibrio fetus*.** —*J. Dairy Sci.* **38,** 1369-1374. **1897**

Artificial inseminations using 7 bulls infected with *V. fetus* produced a greater embryonic mortality and lower conception rate than semen from healthy bulls. Results were improved by the inclusion of antibacterial agents in the diluent, streptomycin alone being as effective as streptomycin in combination with sulphanilamide or penicillin. Storage at 5°C. adversely affected *V. fetus* organisms, even without antibacterial agents.—E.V.L.

TUTT, J. B. (1956). **Vibriosis in dairy cattle with reference to the treatment of a particular outbreak with streptomycin sulphate (streptoquaine).**—*Brit. vet. J.* **112,** 14-21. [Author's summary modified.] **1898**

A general description of *Vibrio fetus* infection is given, arising from its investigation in several herds in Hampshire. The various control methods in current use are discussed. History, clinical findings and treatment with streptoquaine of a herd are described in detail. The results suggest that this antibiotic is of value in infected herds, provided that nutritional requirements are also corrected.

MUNDT, W. (1956). Die Widerstandsfähigkeit von *Vibrio foetus* gegen verschiedene Antibiotika und andere Therapeutika im Vitrotest. [**The resistance of *V. fetus* to different antibiotics and other therapeutic substances *in vitro*.**]—*Prakt. Tierarzt.* No. 2, 30-33. **1899**

Concentrations of 1000 i.u. penicillin and 100 μg. streptomycin per ml. culture had no adverse effect on the growth of *V. fetus* Strain 29. Of 10 other strains similarly tested, growth was inhibited in six with penicillin concentrations of 1000 i.u. per ml. culture, the other four strains being unaffected. Streptomycin, 50 μg. per ml. culture, inhibited growth of most strains, but aureomycin did not. Formic acid (2%), "eleudron" [4-amino-benzole - sulphonamidothiazole], "rivanol" [2 - ethoxy - 6, 9 - diamino - acridine lactate] 1 : 1000, and "lotagen" [a poly-condensation product of m-cresol - sulphonic acid and methanol] had a good bactericidal action *in vitro* against *V. fetus*.—F. K. LEEB.

LINDQVIST, K. (1955). **The occurrence of *Vibrio* strains other than *Vibrio fetus* in the genital organs of cattle.**—*Nord. VetMed.* **7,** 826-832. [In English. German and Norwegian summaries.] **1900**

Seven strains of *Vibrio* isolated from semen and cervical mucus differed from *V. fetus* only in being catalase- and H_2S-positive, growing in deep agar stabs and in being non-infective for maiden heifers. They were not agglutinated by mucus from known cases of *V. fetus* infection. Isolation and culture are needed to distinguish these non-pathogenic forms from *V. fetus*.—A. SEAMAN.

GONHAROV, A. F. (1955). [**Aetiology of foot rot in sheep.**]—*Veterinariya, Moscow.* **32,** No. 12, pp. 32-35. [In Russian]. **1901**

G. concluded that there is no ground for believing that foot rot in sheep is not caused by *Fusiformis necrophorus*, as has been suggested by other Russian workers.—R.M.

MUTOVIN, V. I. (1956). [**Measures for the control of foot-rot in sheep.**]—*Veterinariya,*

Moscow. **33,** No. 1, pp. 26-30. [In Russian.] **1902**

Measures for the control of foot rot comprised improvement of hygiene and management and the dressing of all feet, whether affected or not, with an emulsion of the calcium salt of penicillin in fish oil. In the Kaluga region the number of cases was reduced from 5,018 in the first half of 1954 to 785 in the same period of 1955. Figures are given for the increase in production as a result of eradicating foot rot.—R.M.

COWAN, S. T. (1955). **Biochemical tests for bacterial characterization. II. Gluconate test.**—*Int. Bull. bact. Nom. Taxon.* **5,** 141-149. [Author's summary slightly modified.] **1903**

A microtest was developed to detect the ability of bacterial suspensions to convert potassium gluconate to potassium 2-ketogluconate. Suspensions prepared from growth on glucose agar, or "lemco" broth at pH 5, gave more positive results than suspensions from "lemco" agar or broth at pH 7 to pH 7·6. Most suspensions were more active at pH 4 than at pH 6, but there were enough exceptions to justify carrying out the test at both pH values. Tests made after 24 hours of incubation gave stronger reactions than those after 4 hours; a few strains were positive only when they were tested after 4 hours. The microtest proposed should be made with (a) suspensions from growth on glucose agar, (b) at both pH 4 and pH 6 and (c) after 4 and 24 hours of incubation at 37°C.

BICHEL, J. & STENDERUP, A. (1955). **Experimental investigations on the effect of monilia (*Candida albicans*) on lymphopoiesis in mice (I.)**—*Acta path. microbiol. scand.* **37,** 157-162. [In English.] **1904**

As a result of several recently published records of fatal cases of 'essential lymphocytophthisis' [disease associated with atrophy of lymphoid tissue] in young children, experimental infections of mice with a strain of *C. albicans* isolated from man were made. There was a 50% reduction of the absolute number of lymphocytes in more than half the mice, but the significance of this result was not clear.

—G. C. AINSWORTH.

HAMMER, D. & ENGLERT, H. K. (1956). Torulopsisendocarditis bei einem Bullen. **[Endocarditis in a bull caused by *Torulopsis*.]**—*Tierärztl. Umsch.* **11,** 47-51. **1905**

A description of ulcerative endocarditis of the tricuspid valve in an 18-month-old bull. The morphological and cultural characters of the organism identified it as *Torulopsis neoformans* and the identity was confirmed by the Centralbureau voor Schimmelcultures in Baarn (Holland).—E. G. WHITE.

SALLES GOMES, C. E., FREITAS, D. C. & CUNHA, J. M. V. (1954). Tricofícia em bovinos por *Trichophyton megnini* Blanchard, 1895 (*T. rosaceum* Sabouraud 1909). **[Ringworm in cattle caused by *Trichophyton megnini*.]**—*Rev. Fac. Med. vet., S. Paulo.* **5,** 177-182. [Abst. from English summary.] **1906**

The authors described *T. megnini,* isolated from 2 cattle. This is the first report of this fungus in cattle in Brazil and perhaps in the world.

KRAL, F. (1955). **Classification, symptomatology, and recent treatment of animal dermatomycoses (ringworm).**—*J. Amer. vet. med. Ass.* **127,** 395-402. **1907**

Among the more unusual dermatophyte infections mentioned in this semi-popular, illustrated account of clinical aspects of ringworm in animals are: *Microsporum canis* in monkeys (leading to chronic hyperkeratosis) and chinchillas; *Trichophyton verrucosum* in sheep and dogs; and an unidentified species of *Trichophyton* in pigs. In pigs the ringworm lesions are said to occur usually on the lower abdomen or the medial surface of the thigh, often as small vesicles surrounding a scaly centre; they disappear spontaneously. A special type of ringworm-like lesion of uncertain aetiology but resembling pityriasis rosea of man is also reported from pigs.

—G. C. AINSWORTH.

BARLOW, A. J. E. & CHATTAWAY, F. W. (1955). **Persistent fungus infections of skin, hair, and nails.**—*Lancet.* **269,** 1269-1271. **1908**

This interesting article on human dermatophyte infections considers possibilities why 'in spite of much effort to improve therapy the results are little, if at all, better than they were under treatment by the more old-fashioned methods'. An experiment with 5 cases of *Trichophyton rubrum* infection of the feet is reported. This involved an attempt to degrade the keratin with urea and sodium metabisulphite supplemented by an organic mercury fungicide and the subsequent treatment with ninhydrin to effect cross-linkages between keratin molecules, a chemical change known to make keratin more resistant to fungal attack. The results, which were

clinically inconclusive, emphasize the need for closer study of the barrier presented by keratin to the penetration of fungicidal agents into the epidermis and into the lower two-thirds of the hair follicles, and also for an increased knowledge of the metabolism of the pathogens. —G. C. AINSWORTH.

SCHULZ, K. C. A. (1955). **Mycotic dermatitis (Senkobo skin-disease) of cattle in the Union of South Africa.**—*Bull. epiz. Dis. Afr.* **3,** In English: pp. 244-261. French summary: pp. 328-329. **1909**

The symptoms of this affection, which is attributed to *Streptothrix bovis,* are variable. The earliest symptoms are marked lachrymation and a secretion from the nostrils followed by a skin eruption which resembles an eruptive and later an exudative eczema with marked thickening of the skin. In recently affected areas lesions simulating exuding pimples are formed. These increase in size and become confluent to form thick irregular scabs and wart-like structures which are at first firmly adherent but later fairly easily removed by scraping to expose a pinkish moist surface. The skin affection may first appear on the nose just above the muzzle whence it spreads upwards to around the eyes and between the horns and ears. Later all four limbs are involved. The disease does not appear to interfere with the general health of the animal, except when large areas of skin become affected, when there is gradual loss of condition. The histopathology of the condition is briefly described and fully illustrated. —G. C. AINSWORTH.

MORNET, P. & THIÉRY, G. (1955). Streptothricose cutanée des bovins. **[Bovine cutaneous streptothricosis.]**—*Bull. epiz. Dis. Afr.* **3,** 302-324. [In French. English summary. p. 241.] **1910**

A well-illustrated account is given of a cutaneous affection of cattle which occurs in French West Africa, the Belgian Congo, Nigeria, Tanganyika, Kenya, Rhodesia and Madagascar. The condition is associated with a *Streptothrix* and may possibly be the same as Senkobo disease of South Africa with which the lesions show histopathological features in common. The initial sign is a mild inflammatory reaction. This is followed by the development of papules which later become confluent. The usual form of the disease is characterized by leproid lesions around the anus and vulva, but at other times the lesions may be ichthyotic, nodular (when both sides of the body are involved), or tumorous. The serious form usually becomes complicated with nephritis.—G. C. AINSWORTH.

SNIJDERS, A. S. & JANSEN, B. C. (1955). **A comparison of *Streptothrix bovis* and *Actinomyces dermatonomus*.**—*Bull. epiz. Dis. Afr.* **3,** In English: pp. 242-243. In French: pp. 325-327. **1911**

It is concluded from a cultural study that the causal organisms of Senkobo skin disease in cattle *(Streptothrix bovis)* and of 'lumpy wool' in sheep *(Actinomyces dermatonomus)* are very similar. The main difference is that the former grows more actively than the latter and retains its viability longer in stored cultures.—G. C. AINSWORTH.

GALE, D. & WALDRON, C. A. (1955). **Experimental actinomycosis with *Actinomyces israeli*. The development of visceral actinomycosis.**—*J. infect. Dis.* **97,** 251-261. **1912**

Visceral actinomycosis was produced in mice by i/p inj. of *Actinomyces israeli* in mucin and in broth nutrient. The development and distribution of the lesions varied according to the adjuvant used. The organism was readily cultured from the lesions and a bacteraemia was observed in almost all the mice on the second day after inoculation and in some on the 9th day. The mouse is considered more suitable than the g. pig for pathogenicity tests—T.E.G.R.

SZABÓ, I. & MARTON, M. (1955). Der gegenseitige Antagonismus der Strahlenpilze. I. Untersuchung des Actinomyces-Stammes M 17. **[Mutual antagonism in Actinomycetaceae. I. *Actinomyces* Strain M 17.]**—*Acta. microbiol. hung.* **3,** 1-18. [In German. Russian summary.] **1913**

Using 8 strains of *Actinomyces* and 11 strains of bacteria isolated from compost, the authors studied the special characters of antibiotic (anti-actinomyces-factor) produced by an organism which they designate "Actinomyces M17". This antibiotic was very active against other fungi but completely inactive against a wide range of Gram-negative and Gram-positive bacteria. It was thermostable, and resisted biological inactivation, represented the essential metabolic product of the strain, and was produced from many different carbon sources and on all media. Its presence could not be demonstrated, however, in non-sterile soil with its very mixed microbial flora.—E. G. WHITE.

FOURIE, P. J. J. (1955). **Actinobacillosis, the cause of a non-specific reaction to the intradermal tuberculin test, but a negative short thermal tuberculin test.**—*J. S. Afr. vet. med. Ass.* **26,** 289-290. [Abst. from author's summary.] **1914**

Actinobacillosis is reported in an ox which reacted to the i/d tuberculin test, but not to the short thermal test. After treatment, sensitivity to tuberculin disappeared. The short thermal tuberculin test may prove to be a valuable check test in problem herds.

HILL, D. H. (1956). **Some clinical and serological observations on an outbreak of contagious pleuropneumonia in a dairy herd of zebu cattle in Nigeria.**—*Brit. vet. J.* **112,** 63-70. [Author's summary modified.] **1915**

An account of an outbreak of bovine contagious pleuro-pneumonia in a dairy herd of zebu cattle and of control measures taken. The results of the complement-fixation test in relation to clinical and P.M. findings are discussed.

DHANDA, M. R. & SHARMA, G. L. (1956). **Studies on the *in vitro* effect of certain chemotherapeutic agents on the organism of contagious caprine pleuro-pneumonia.**—*Indian vet. J.* **32,** 246-255. [Abst. from authors' summary.] **1916**

The susceptibility was studied of a virulent strain of the caprine contagious pleuro-pneumonia organism to the *in vitro* action of various antibiotics. Bennett's broth was used as culture medium. Penicillin proved ineffective even at a concentration of 100 i.u. per ml. of the medium. The minimum inhibitory concentration of dihydrostreptomycin and of chloramphenicol was 12·5 μg. per ml., of neoarsphenamine 125 μg./ml., and of sulphadimidine 33·3 mg./ml. Sulphasolucin and sulphapyridine were ineffective at the concentrations tested.

LARSON, N. L. & HILL, E. G. (1955). **The intestinal microflora of young swine obtained by hysterectomy. Observations on chlortetracycline supplementation.**—*J. Anim. Sci.* **14,** 674-687. **1917**

Baby pigs obtained by hysterectomy were used in 4 experiments. Colostrum was withheld and contact with other pigs was prevented during early life. In each experiment a group of pigs was fed a basal diet and a second group was fed a diet supplemented with chlortetracycline. Fluctuations in faecal microflora were observed in both groups. At the end of each experiment material from various segments of the intestine was examined for microflora, chlortetracycline and respiratory activity. The only marked change noted was suppression of clostridia and reduction in the oxygen uptake in the ileum of pigs on the supplemented diet.—T.E.G.R.

See also absts. **2052** (composition of blood in fowls with coryza and fowl cholera); **2054** (Corynebact. renale and bovine haematuria); **2064** (bacteriology of omphalitis in baby chicks); **2140-2141** (report, Agricultural Research Council); **2142** (report, Colonial Medical Research Committee); **2145** (report, Gold Coast); **2146** (report, Sierra Leone); **2147** (report, Trinidad and Tobago); **2148** (report, Bechuanaland); **2149** (report, Nyasaland).

DISEASES CAUSED BY PROTOZOAN PARASITES

GABEL, A. A., THARP, V. L., THORNE, J. L., GROVES, H. F., KOUTZ, F. R. & AMSTUTZ, H. E. (1956). **Trichomoniasis in an artificial insemination bull stud. A clinical report, including results of diagnostic and treatment methods.**—*J. Amer. vet. med. Ass.* **128,** 119-123. **1918**

This paper records an outbreak of trichomoniasis in 24 bulls out of 65 in an artificial insemination centre, and the measures taken to control it. Several diagnostic methods were used and the authors conclude that preputial douching followed by culture tests, and test-mating with virgin heifers were the most reliable. Parasites could not be detected in 11 out of 18 bulls after local treatment, under epidural anaesthesia, with an ointment containing an acridine base and a compound of urea and quinoline. In most cases several applications were necessary. It is stated that feeding with phenothiazine prior to treatment appeared to improve the results. Details of hygienic measures taken to prevent the spread of the infection are outlined.—L. P. JOYNER.

SZAFLARSKI, J., BIELAŃSKI, W. & ZAPRZAŁ, K. (1955). **Trichomonas bovis in the epididymis of a bull.**—*Bull. Acad. polon. Sci. Cl. II.* **3,** 249-252. [In English.] **1919**

A bull in which trichomonads had been demonstrated was examined P.M. Trichomonads were recovered from the epididymis. —J. G. O'SULLIVAN.

RIECK, G. W. (1956). Die Entwicklung einer Standard-Methode zur Diagnose des Trichomonadenbefalls beim Bullen. **[Standard method for the diagnosis of *Trichomonas* in-**

fection in bulls.]—*Fortpflanzung.* **6,** 9-12. [English summary.] **1920**

R. recommends that, before preputial washings collected in saline are sent to the laboratory, a powdered peptone enrichment be added. Examination of material is best made by direct phase contrast microscopy of the sediment after centrifugation at 3,000 r.p.m. for 20 min. Negative results are further checked by cultural examination, using a serum peptone broth containing penicillin, streptomycin, and ascorbic acid.

—M. L. CLARKE.

HYPES, R. A. & LADEWIG, P. P. (1956). **Leukocytic clusters on epithelial cells in cervicovaginal smears: a presumptive test for *Trichomonas* infection.**—*Amer. J. clin. Path.* **26,** 94-97. **1921**

In the course of work on human beings in the diagnosis of cancer the authors noted that infections with *Trichomonas* were associated with leucocyte clusters. There was grouping of leucocytes on the surface of squamous cells in 89% of 190 cases of trichomonad infection.—JAS. G. O'SULLIVAN.

FITZGERALD, P. R., JOHNSON, A. E., THORNE, J. & HAMMOND, D. M. (1955). **Experimental infections of the bovine genital tract with trichomonads from swine.**—*J. Parasit.* **41,** No. 6, Sect. 2. (Suppl.) p. 17. **1922**

When trichomonads (not specified) from the nose, stomach and caecum of pigs were introduced into the uterus of heifers the protozoa became established there and persisted for up to 2 months. Their presence was associated with infertility and abortion.

—J. G. O'SULLIVAN.

MONSUR, K. A. (1956). **Alcoholic extracts of Kedrowsky's bacillus as antigen for complement-fixation tests in kala-azar.** — *Trans. R. Soc. trop. Med. Hyg.* **50,** 91-96. **1923**

A fraction from an alcoholic extract of Kedrowsky's bacillus is considered as good as, and simpler to prepare than, the standard antigen for the c.f. test in leishmania infection.

—T.E.G.R.

ANON. (1955). GREAT BRITAIN. **Tsetse Fly and Trypanosomiasis Committee Report for 1954-1955.** London: Colonial Office. 27 pp. **1924**

The report covers the committee's work on the East African Tsetse Fly and Trypanosomiasis Research and Reclamation Organisation and that of the West African Institute for Trypanosomiasis Research.

The Advisory Committee met three times during the year; it also gave valuable help in filling vacancies in research staffs in African territories. The problem of staffing the new laboratory at Toraro was overcome and it was hoped to have—in addition to the tsetse fly research staff—three medical, two veterinary officers, a pathologist and a bio-chemist.

In the West African Institute an information bureau has been completed at the Kaduna Laboratory.

Research at this Institute was divided into that on human trypanosomiasis, animal trypanosomiasis and studies on the insect vectors. Publications by the staff of the East African Organisation and of the West African Institute are listed.

A note is included on the activities of territorial departments, Northern Rhodesia, the Gold Coast and Uganda. No major research on game preservation was undertaken during the year.—D. S. RABAGLIATI.

LUND, E. E. (1955). **The progress of histomoniasis (blackhead) in turkeys as related to the size of the infective dose.**—*Poult. Sci.* **34,** 127-130. **1925**

L. studied the progress of histomoniasis in turkey poults, 8–10 weeks old, infected *per rectum* with 10 to 100,000 histomonads. The caecal lesions provided a more reliable indication of the severity of infestation than did the hepatic ones. The caecal lesions produced in 2 to 25 days by various numbers of histomonads were shown pictorially in table form.—E. A. GIBSON.

HORTON-SMITH, C. & LONG, P. L. (1956). **Furazolidone in the control of histomoniasis (blackhead) in turkeys.**—*J. comp. Path.* **66,** 22-34. **1926**

At levels of 0·01–0·02% in the food, furazolidone was very effective in preventing histomoniasis induced by feeding *Heterakis* ova to turkeys. A level of 0·04% is suggested for treatment of established disease. The drug has only an inhibitory effect on the parasite.

—D. LUKE.

KENDALL, S. B. & JOYNER, L. P. (1956). **The potentiation of coccidiostatic drugs by pyrimethamine.**—*Vet. Rec.* **68,** 119-121. **1927**

Experiments were designed to show the coccidiostatic effect of pyrimethamine in synergic combination with sulphadimidine, sulphaquinoxaline, sulphaguanidine and nitrofurazone, respectively. Young susceptible chickens were inoculated orally with a

sufficient number of oocysts of *Eimeria tenella* to cause a high mortality in untreated control groups. Sulphadimidine, sulphaquinoxaline, sulphaguanidine or nitrofurazone were administered in mash from the second to the fifth day after infection and at concentrations at or above those recommended for field use. The resulting mortality was compared with that observed when the same drugs were used at one-tenth these concentrations but in combination with 0·004% pyrimethamine. Other concentrations of sulphadimidine, sulphaquinoxaline, and nitrofurazone were tested in conjunction with 0·0025% pyrimethamine. There was no synergism between pyrimethamine and nitrofurazone; however, a marked synergism was demonstrated between pyrimethamine, and sulphadimidine, sulphaguanidine or sulphaquinoxaline. Complete protection was afforded chicks treated with 0·0025% pyrimethamine and 0·05% sulphadimidine, or 0·01% sulphaquinoxaline. These observations are of importance in the elucidation of the mode of action of coccidiostatic drugs, and in that therapeutic control may in the future be attained by the use of far smaller quantities of drugs. This will be of particular benefit in the use of sulphadimidine where the full therapeutic level is near the toxic limit.

—A. E. Pierce.

Mathey, W. R., Jr. (1955). **Malaria in canaries.** —*Vet. Med.* **50,** 369-370. **1928**

Plasmodium cathemerium was demonstrated in impression smears and sections of the spleen in the course of an investigation of heavy mortality among canaries. Treatment with mepacrine hydrochloride (atebrin) and protection against mosquitoes prevented further losses.—T.E.G.R.

Kotlán, A. & Babos, A. (1955). Über das Vorkommen und die Verbreitung der Pferdebabesiose und deren Überträger in Ungarn. [***Babesia* infection in horses in Hungary.**]—*Acta vet., hung.* **5,** 425-430. [In German. Russian summary.] **1929**

A brief history is given of the incidence of ticks in Hungary. *Dermacentor marginatus* and *D. pictus* are plentiful in most areas; *Hyalomma* occurs sporadically, and is probably introduced annually on imported animals and birds. *B. caballi* infection in horses was first reported in 1953. In 1955 it spread to 3 neighbouring farms, and a further outbreak occurred 125 miles away. The vector in all cases was *D. marginatus*.—M.G.G.

Semenov, P. V. (1955). **[Epidemiological significance of foals in *Babesia* infection in horses.]**—*Veterinariya, Moscow.* **32,** No. 4, pp. 49-50. [In Russian.] **1930**

S. observed *Babesia* (1–9 organisms in 100 microscopic fields) in the blood of 13 out of 42 apparently healthy yearling foals, and in the eggs of 12 out of an unstated number of *Dermacentor marginatus* taken from the foals, in the Altai Krai (Siberia). He concluded that when determining the infection status of a given farm (acute infection, latent infection, or uninfected) the blood of foals must also be examined.—R.M.

Duil'ko, N. I. (1955). **[Latent *Babesia* infection in cattle.]** — *Veterinariya, Moscow.* **32,** No. 4, pp. 47-48. [In Russian.] **1931**

D. examined smears of peripheral blood taken during June and again during September from 313 clinically healthy calves and 36 adult cattle on 12 collective farms in the Brest region of the Belorusskaya S.S.R. *Babesia bovis* was observed in smears from 89 of the calves and 10 of the adult cattle. There were 4 times as many parasites in blood taken in September as there were in blood taken in June.—R.M.

Shmulevich, A. I. (1955). **[Biomycin and "morphiplasmin" in *Theileria* infection of cattle.]** — *Veterinariya, Moscow,* **32,** No. 6, p. 50. [In Russian.] **1932**

Sixteen calves and a cow were infected with *Th. annulata,* either by means of infective ticks *(Hyalomma anatolicum)* or by placing them on infected farms. When symptoms developed they were treated either with biomycin hydrochloride or with "morphiplasmin" (an aqueous soln. containing 1% morphine hydrochloride and 5% quinuronium sulphate), or with a combination of both. The latter drug was injected s/c twice daily for 4–5 days at a dosage of 2 ml./100 kg. body wt. Biomycin was given by mouth as a drench for 4–5 days, 600,000–800,000 units 3 times daily for the calves and 600,000 units 4 times daily for the cow. All animals recovered, except two which were treated with "morphiplasmin" alone.—R.M.

Hulland, T. J. (1956). **Toxoplasmosis in Canada.**—*J. Amer. vet. med. Ass.* **128,** 74-79. [Abst. from author's summary.] **1933**

Symptoms and P.M. findings were described in 8 dogs, a cat, a mink and in 3

outbreaks on chinchilla farms in Ontario. This is the first report of this disease in mink. H. discussed the literature.

BECKER, W. (1954). Toxoplasmose beim Hausschwein. **[Toxoplasmosis in pigs.]**—*Inaug. Diss., Giessen.* pp. 32. **1934**

B. described natural toxoplasmosis in two piglets. The serum of an experimentally infected pregnant sow gave titres of 1 : 400 and 1 : 600 to the Sabin-Feldman and complement-fixation tests respectively, 18 days after infection. After parturition on the 109th day the respective titres were 1 : 100 and negative. Of 9 piglets born, 5 survived and toxoplasms were demonstrated in 4 of them. A second pregnant sow, placed in contact with the first, showed no evidence of infection serologically, but toxoplasms were found by mouse inoculation in 2 of the 8 foetuses in utero. Both sows had paralysis of the hindquarters for several weeks before slaughter.—M. L. CLARKE.

CATHIE, I. A. B. (1955). **The laboratory diagnosis of toxoplasmosis.**—*Proc. R. Soc. Med.* **48,** 1074-1076. **1935**

C. deals with the isolation of *Toxoplasma* and the serological diagnosis of infection. For isolation, mice and g. pigs are satisfactory, more than three blind passages being unnecessary. Of the serological tests, the complement-fixation technique using egg antigen gives an indication of active toxoplasmosis. The dye test (cytoplasm modifying antibody) shows a greater incidence of toxoplasmosis than the c.f. test and the incidence of positive reactions increases as the population ages. Low titres with the dye test are considered normal, but high titres usually occur when the c.f. test is positive.

—E. J. L. SOULSBY.

YAMAMOTO, S., ISHIDA, K. & FUJIWARA, K. (1955). **Studies on toxoplasmosis in animals. I. Report of a case in cat.**—*Jap. J. vet. Sci.* **17,** 13-18. [In English. Japanese summary. Authors' English summary modified.] **1936**

Fatal toxoplasmosis in a cat is described. *Toxoplasma* was isolated from the ascitic fluid. Histopathological examination revealed subacute or chronic peritonitis and granulomatous lesions in the pancreas and liver.

SYSOEV, A. S. (1955). **[Pathogenesis of sarcosporidiosis in pigs.]**—*Veterinariya, Moscow.* **32,** No. 10, pp. 76-78. [In Russian.] **1937**

S. examined portions of diaphragm from about 320,000 pig carcasses and found sarcosporidia in 29,000 of them. 90 affected carcasses were examined in detail, and it was found that 20–30% of all sarcosporidia observed in standard samples of muscle occurred in the diaphragm, 19–21% in the triceps brachii, 18% in the gluteal muscle, and 15% in the psoas and neck muscles. Infested pigs came from coastal or river districts where fish was fed to the pigs in spring and summer. S. suggested that fish was the source of infestation, pointing out that the parasites were most common in carcasses slaughtered during the period June–October.—R.M.

LAWRENCE, J. J. (1955). **The sexual multiplication of the 'malaria parasite' of Australian flying foxes.**—*Aust. J. Sci.* **18,** 61-62. **1938**

Nodules in the liver of the little red flying fox, *Pteropus scapulatus,* contained mature stages of asexual development of a 'malaria parasite', *Hepatocystis* sp.

—R. I. SOMMERVILLE.

OXFORD, A. E. (1955). **The rumen ciliate protozoa: their chemical composition, metabolism, requirements for maintenance and culture and physiological significance for the host.**—*Exp. Parasit.* **4,** 569-605. [Author's conclusion modified.] **1939**

The possible harmful action of these organisms (wastage of bacterial and fodder protein, destruction of B vitamins, production of lactic acid) was discussed. Their beneficial action is summarized. *Diplodinium* possesses a cellulase of its own, or harbours symbiotic cellulolytic bacteria. Rumen ciliates contain protein of good nutritional value. The holotrichs aid the bacterial attack on soluble carbohydrates and starch, and have 2 special uses of their own not possessed by rumen bacteria in general: they store carbohydrate before fermenting it; and they continue to ferment it to volatile fatty acids over a very long period. Gutierrez [*V.B.* **26,** 81] calculated that they produced over 10% of the total acid in a steer's rumen.

This article was written before Hungate's review of the rumen ciliates in Vol. II (1955) of "Biochemistry and Physiology of Protozoa" had appeared. The author resisted the impulse to recast this article because he feels that the two viewpoints are complementary. Both agree that, much more work on the rumen ciliates is called for, in view of their economic importance.

See also abstr. **2146** (report, Sierra Leone); **2148** (report, Nyasaland).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

BODON, L. (1955). **Typing foot-and-mouth disease virus with the agar gel diffusion method.**—*Acta vet. hung.* **5,** 157-159. [In English. Russian summary.] **1940**

The Ouchterlony-Björklund method was applied to 3 strains of F. & M. disease virus, O, A_5 and C. Basins of 1 cm. diameter, one central and 3 radially disposed at a distance of about 1 cm., were cut in the solid agar medium described. The antigen under test was pipetted into the central basin and hyperimmune O, A_5 and C sera into the 3 surrounding ones. The plate was incubated for 3 days, the basins being refilled daily. Each strain showed a distinct precipitation line in the area between itself and the corresponding immune serum. The test is simple, requires little antigen and the author regards it as specific.

—C. C. BANNATYNE.

KÖRNYEI, I. (1955). **Micromethod applied in the serodiagnosis of foot-and-mouth disease virus.**—*Acta. vet. hung.* **5,** 95-98. [In English. Russian summary.] **1941**

The test is carried out in a series of holes of 0·15 ml. capacity bored in a 9 mm. "plexiglass" plate. The components are added by means of metal dip tubes delivering 0·025 ml. Serial dilutions are made with 0·025-ml. spiral loops. K. claims that the test is very accurate, easily read and is particularly useful in typing unknown antigens which are often available only in minute quantity.

—C. C. BANNATYNE.

THIÉRY, J.-P. & DHENNIN-SALOMON, L. (1955). Essai d'ultrafiltration du virus de la fièvre aphteuse. **[Ultrafiltration of foot and mouth disease virus.]**—*Bull. Off. int. Epiz.* **43,** 703-707. **1942**

The dried small intestine of pigs was used as a membrane for the filtration of a suspension of ground embryonic tissue culture of F. & M. disease virus. By varying the pressure it was possible to separate the virus from other molecules—both larger and smaller than itself. The filtrate appeared to have immunizing properties.—T.E.G.R.

BACHRACH, H. L., HESS, W. R. & CALLIS, J. J. (1955). **Foot-and-mouth disease virus: its growth and cytopathogenicity in tissue culture.**—*Science.* **122,** 1269-1270. **1943**

F. & M. disease virus multiplies and causes cytopathogenic changes in both porcine and bovine kidney tissue cultures. Methods are described for the assay of the virus and its antibodies and for the production of virus on a relatively large scale.—M.G.G.

THOMAS, J.-A. (1956). Nouvelle méthode de production en grande quantité du virus de la fièvre aphteuse, chez la vache, et propriétés du virus ainsi obtenu. **[New method for the production of large amounts of foot and mouth disease virus in the cow, and properties of the virus obtained.]** — *C. R. Acad. Sci., Paris.* **242,** 694-697. **1944**

Massive oedema was provoked at each flank of a cow by the s/c injection of sterile culture medium. The cow was then infected intralingually with F. & M. disease virus strain A_5, and was killed at the stage of primary aphthae. The oedematous fluid (more than 12 litres) was collected under sterile conditions; it contained virus which appeared to be attenuated and possessed immunizing properties.—R.M.

MCCLAIN, M. E. & MADIN, S. (1955). **Experimental studies on vesicular stomatitis virus. I. Factors influencing infectivity titrations in the chick embryo.**—*J. infect. Dis.* **97,** 280-286. **1945**

Vesicular stomatitis virus caused a mortality of 80–100% within 35 hours, with no pathognomonic changes, in chick embryos. Variations in the incubation temperature of the eggs had little or no effect on the final LD_{50} titre. Susceptibility of the chick embryo to the virus decreased with age. The allantoic sac was more resistant to infection than the chorio-allantoic membrane.—T.E.G.R.

IVÁNOVICS, G., BÉLÁDI, I. & SZÖLLÖSY, E. (1955). **Variation of the cytopathogenic activity of Aujeszky-disease (pseudorabies) virus.**—*Acta microbiol. hung.* **3,** 159-172. [In English. Russian summary.] **1946**

The virulence of the virus of Aujeszky's disease is influenced by the host cells in which the virus propagates. The action of the virus on chick embryo cells was reduced by previous serial transmission in mouse embryo tissue suspension. A tissue culture infected with this variant was protected against the original virulent strain.—E.V.L.

I. JELESIĆ, R. (1955). Einfluss der Hibernation auf die Aujeszkysche Krankheit. **[Effect of hibernation on Aujeszky's disease.]**—*Arch. ges. Virusforsch.* **6,** 298-301. **1947**

II. JELESIĆ, Z., KIKINIS-JELESIĆ, R. &

JELESIĆ, G. (1955). Einfluss der Hibernation auf die Vermehrung und Ausbreitung von Virus Aujeszky. **[Effect of hibernation on multiplication and distribution of Aujeszky virus.]**—*Ibid.* 374-378. **1948**

I. Hibernation was artificially induced in rabbits immediately after and at 24, 48 or 51 hours after i/m inoculation with Aujeszky virus. By comparison with controls, hibernation lengthened the incubation period, and delayed the death of the rabbits.

II. Five rabbits were inoculated i/m with Aujeszky virus. Fifty-two hours later, 3 were subjected to hibernation lasting 20 hours. During this period they remained symptomless. Virus titres in the brain 72 hours after inoculation were $10^{-1.83}$ and $10^{-3.66}$ in the 2 controls, but 10^{-1} in the hibernating rabbits. In a similar experiment with 7 rabbits, the hibernation period was extended to 25 hours, and the spinal cord was also examined. Virus was found in both the brain and spinal cord of the controls, but in the spinal cord only of one of the 3 hibernating rabbits.—M.G.G.

IVÁNOVICS, G., BÉLÁDI, H. & SZÖLLÓSY, E. (1955). **Interference between variants of pseudorabies virus demonstrable in tissue culture.**—*Nature, Lond.* **176,** 972-973. **1949**

The virus of Aujeszky's disease after passage on mouse embryo tissue had a decreased cytopathogenic effect on chick cell cultures. The mouse-adapted virus interfered with the cytopathogenic action of a chick-adapted strain of virus.

SOLOMKIN, P. S. (1955). **[Review of the use of aluminium hydroxide formolized vaccine against Aujeszky's disease.]**—*Veterinariya, Moscow.* **32,** No. 12, pp. 11-14. [In Russian.] **1950**

S. discussed the present widespread use in pigs of aluminium hydroxide formolized vaccine against Aujeszky's disease, following its official introduction in the U.S.S.R. in 1951, and gave examples of its successful use on infected farms.—R.M.

BURNS, K. F., FARINACCI, C. J. & MURNANE, T. G. (1956). **Rabies in insectivorous bats of Texas.**—*J. Amer. vet. med. Ass.* **128,** 27-31. [Authors' summary modified.] **1951**

The isolation and identification of 9 strains of rabies virus from the brains of Mexican free-tailed bats *(Tadarida mexicana)* during 1954 is reported. Neutralization tests in mice on the sera of 283 healthy and diseased bats revealed neutralizing antibody for rabies virus in a high percentage of specimens.

CAMARGO NUÑEZ, F. & VELAZQUEZ ECHEGARAY, A. (1955). Desarrollo y produccion de la vacuna avianizada Mexicana. **[An avianized rabies vaccine for the control of derriengue in Mexico.]** pp. 16. Palo Alto, Mexico: Instituto de Investigaciones Pecuarias. **1952**

In extensive field trails chick embryo rabies vaccine produced a solid immunity against bovine paralytic rabies, with a minimum of post-vaccinal accidents.

—I. W. JENNINGS.

REAGAN, R. L., TROMBA, F. G., GEUMLEK, M. & BRUECKNER, A. L. (1956). **Transmission of a street rabies virus strain (R-174) from the cave bat** *(Myotis lucifugus)* **to the tick** *(Ornithodoros)* **by blood feeding: a preliminary report.**—*Cornell Vet.* **46,** 3-6. **1953**

Eight bats were inoculated i/p with 0·1 ml. of a suspension of rabies virus. Ticks *(O. turicata)* were fed on these bats 24 hours later, and placed in an incubator at 30·5°C. for 7 days. Twelve hamsters were then infected *per rectum* with a suspension of the ticks. Rabies was revealed in 5 by symptoms of paralysis, the presence of Negri bodies and by the intracerebral infection of mice with suspensions of their brains.—M.G.G.

HUSSEL, L. (1955). Präinfektionelle Immunisierung der Hunde im Dienste der Tollwutbekämpfung. **[Control of rabies by immunization of dogs.]** — *Mh. VetMed.* **10,** 471-475. **1954**

H. recommended the periodic vaccination of dogs against rabies, and drew attention to the lower incidence of this disease in countries where this has been done.—M.G.G.

VIEUCHANGE, J. (1956). Multiplication du virus rabique, (virus fixe et virus des rues) dans les cultures de tissus en dialyse. **[Multiplication of rabies virus in dialysed tissue cultures.]**—*C. R. Acad. Sci., Paris.* **242,** 201-203. **1955**

Better multiplication of rabies fixed virus occurred in dialysed tissue cultures than in roller tube cultures. The street virus also multiplied in the dialysed cultures.—R.M.

KISSLING, R. E., CHAMBERLAIN, R. W., NELSON, D. B. & STAMM, D. D. (1955). **Studies on the North American arthropod-borne encephalitides. VIII. Equine encephalitis studies in Louisiana.** — *Amer. J. Hyg.* **62,**

233-254. [Authors' summary modified.] **1956**

The results of a year-round sampling of mosquitoes and birds in an area where equine encephalitis was endemic. Eastern equine encephalitis virus was isolated once from a mosquito *(Anopheles crucians)* and 3 times from wild birds. Western equine encephalitis virus was isolated 3 times from mosquitoes (once from *Culiseta melanura* and twice from *Aedes infirmatus*) and 3 times from birds. All isolations occurred between March and August. Serological tests revealed a higher rate of antibody in birds migrating into the tropics for the winter than in permanent and winter residents. Several possibilities for virus survival are discussed.

LABZOFFSKY, N. A., GRAINGER, R. M. & ROSS, W. G. (1955). **Survival of equine encephalomyelitis virus (Eastern type) for eleven years at 4°C. in the presence of cysteine hydrochloride.**—*Canad. J. Microbiol.* **1,** 715-720. **1957**

A strain of Eastern equine encephalomyelitis virus held in a diluent containing cysteine hydrochloride for 11 years at 4°C. was active when inoculated into chick embryos. Cross protection and neutralization tests revealed no differences between the preserved virus and the parent strain which had undergone several egg and g. pig passages during the intervening years.—A. GREIG.

BARTELL, P. & KELIN, M. (1955). **Neutralizing antibody to viruses of poliomyelitis in sera of domestic animals.**—*Proc. Soc. exp. Biol., N.Y.* **90,** 597-601. [Authors' summary modified.] **1958**

The sera of cows and steers revealed neutralizing substances in high titre against the viruses of poliomyelitis. These were shown to be specific antibodies. The sera of horses, pigs and fowls also possessed modest neutralizing activity; the sera of dogs, cats, calves and lambs did not. Attempts to isolate a virus from cattle were unsuccessful. The antigenic stimulus giving rise to these antibodies is unknown.

NAKAMURA, R., SONODA, M., TOO, K., MATSUHASHI, A., SAKAMOTO, T. & OHSHIMA, K. (1955). **Therapeutic treatments in equine infectious anemia. V. The use of actinomycin, fermicidin and chromomycin for naturally affected with chronic infectious anemia.**—*Jap. J. vet. Res.* **3,** 113-119. [In English.] **1959**

Having shown high antiviral activity *in vitro,* these three antibiotics were used, each in one horse affected with chronic infectious anaemia, in daily i/v doses of 10–20, 15–25 and 5–20 μg./kg., respectively, and were ineffective. Actinomycin was the most, and fermicidin the least, toxic.

—G. P. MARSHALL.

STEIN, C. D. (1955). **Infectious anemia (swamp fever) of horses, mules and donkeys.** —*Fmrs' Bull. U.S. Dep. Agric.* No. 2088. pp. 10. **1960**

A concise review of the transmission and distribution of equine infectious anaemia with a useful description of symptoms and suggested control measures.—E.V.L.

MIURA, S., SATO, G. & MIYAMAE, T. (1955). **Further observations on the transmission of equine infectious anemia virus of sheep.** —*Jap. J. vet. Res.* **3,** 136-139. [In English.] **1961**

A healthy foal received s/c 400 ml. of organ suspension from a lamb, slaughtered 77 days after the s/c inoculation of E.I.A. virus. The foal developed typical symptoms of E.I.A. 12 days later. However, biopsies of the liver and spleen and P.M. examination 32 days after infection gave negative results. The findings were discussed. [See also *V.B.* **26,** 824.]

—M.G.G.

MCINTOSH, B. M. (1955). **Horsesickness antibodies in the sera of dogs in enzootic areas.** —*J. S. Afr. vet. med. Ass.* **26,** 269-272. [Author's summary modified.] **1962**

Sera from 13 dogs were tested. One dog had antibodies against a type 3 strain only. It was concluded that the dog is not an important host in insect-borne African horsesickness.

BUGYAKI, L. (1955). Vaccin contre la peste bovine par virus adapté au lapin. **[Vaccination against rinderpest with lapinized virus.]** —*Bull. agric. Congo belge.* **46,** 839-842. [Flemish summary.] **1963**

Lapinized rinderpest virus affords complete protection to indigenous cattle in the Belgian Congo. The only reaction is a slight rise in temperature in a small percentage of the animals. B. tried, without success, to adapt the lapinized virus to pigs.—I. W. JENNINGS.

PRITCHARD, W. R., TAYLOR, D. B., MOSES, H. E. & DOYLE, L. P. (1956). **A transmissible disease affecting the mucosae of**

cattle.—*J. Amer. vet. med. Ass.* **128,** 1-5. [Authors' summary modified.] **1964**

The widespread occurrence of virus diarrhoea-Indiana, an unusual disease of cattle, is described. It is characterized, clinically, by fever, nasal discharge, cough, erosions of the oral mucosa, lameness, and diarrhoea; at P.M. examination, by erosions, congestion and haemorrhage of the mucosae of the digestive tract, and congestion of the upper respiratory tract; and haematologically, by leucopenia. It was transmitted experimentally to calves with Berkefeld-N filtrates of blood from affected animals. Cross-immunity tests with virus diarrhoea-New York indicated that the two diseases are different immunologically. The name "virus diarrhoea - Indiana" has been used for this disease because of its clinical similarity to virus diarrhoea-New York. It resembles a number of other cattle diseases. However, the long course, absence of lung lesions, complete lack of response to chemotherapy, profuse diarrhoea, high morbidity and low mortality are helpful in making a correct diagnosis.

I. Omori, T., Kawakami, Y., Ishii, S., Ishitani, R., Harada, K. & Matumoto, M. (1954). **Studies on the disease of cattle caused by a psittacosis-lymphogranuloma group virus. IV. Identification of a virus (Shizuoka Strain) as a causative agent of bovine encephalomyelitis.** — *Jap. J. exp. Med.* **24,** 257-273. [In English.] **1965**

II. Omori, T., Matumoto, M., Kawakami, Y. & Fukuhara, S. (1954). **Studies on the disease of cattle caused by a psittacosis-lymphogranuloma group virus. V. Experimental infection of laboratory animals with the "Shizuoka" Strain isolated from bovine encephalomyelitis.**—*Ibid.* 313-323. [In English.] **1966**

I. & II. In an investigation of an outbreak of encephalomyelitis in cattle the disease was reproduced in two calves by inoculation with tissue suspensions from a naturally occurring case. A virus was isolated in chick embryos by yolk sac inoculation of blood and tissue from an artificially infected calf. The virus had the morphological, serological and pathogenic properties of the psittacosis-lymphogranuloma group and reproduced the disease on experimental inoculation of calves. Complement-fixing antibodies were demonstrated in the artificially infected calves and in cattle in the area of the outbreak. The virus is, therefore, considered to be the causal agent of the disease which is very similar to the sporadic encephalomyelitis of cattle in the U.S.A.—T.E.G.R.

Fontanelli, E. & Caparrini. W. (1955). La dermatite pustolosa mammaria delle pecore e delle capre nella provincia di Viterbo. **[Pustular dermatitis of the udder in sheep and goats in the Viterbo Province, Italy.]**—*Zooprofilassi.* **10,** 603-608. **1967**

Vesicles and pustules appeared on the udder and on the inside of the thighs of goats soon after parturition. Superficial and deep abscesses of the udder were also seen in some of the animals. A staphylococcus was isolated from the lesions. The same symptoms had been observed at the previous lactation and had cleared up spontaneously during the summer months. Vesicles and pustules were also observed in a small flock of sheep after parturition and a staphylococcus was isolated. The condition was benign. A skin eruption occurred on the woman who milked the sheep and on her child. The lesions cleared up rapidly.—T.E.G.R.

Vallée, A. (1955). Sur la nature de la réaction des porcs pestiques à l'antigène de Sarnowiec. **[Nature of the reaction of pigs with swine fever to the antigen described by Sarnowiec.]**—*Bull. Acad. vét. Fr.* **28,** 351-358. **1968**

The author infected groups of healthy young pigs with virulent swine fever virus and 3–8 days later inoculated them i/d with 0·5 ml. of antigen consisting of formolized swine fever blood to which castor oil was added, as described by Sarnowiec [*V.B.* **6,** p. 661], the reaction being read after 24 hours. Except in groups in which antigen that had been stored (at room temp. or in the refrigerator for 2–3 months) was used, the infected pigs gave either a moderate or a strongly positive reaction whereas healthy controls were negative. It was concluded that the reaction is an indication of infection, and not of immunity as suggested by Donatien & Lestoquard [*V.B.* **6,** pp. 231–232].—F.E.W.

Ohder, H. (1955). Verluste nach Schweinepestimpfung in Beständen mit Leberzirrhose. **[Losses following swine fever vaccination in a piggery in which there had been an outbreak of cirrhosis of the liver.]**—*Mh. Vet-Med.* **10,** 621-626. **1969**

After reviewing the literature, the author described an outbreak of cirrhosis of the liver amongst 300 pigs. An infectious factor was

ruled out by bacteriological and serological tests, and by contact and inoculation tests with healthy pigs. The pigs' food was deficient in vitamin A, and contained a protein concentrate heavily infested with mites. Two experimental pigs were fed on this concentrate for 10 weeks. During this period they were vaccinated against swine fever. No symptoms were observed. Histological examination of the liver revealed a slight increase of the perilobular connective tissue.—M.G.G.

RÖHRER, H. & PEHL, K.-H. (1955). Bericht über einen Grossversuch mit Riemser Kristall-Violett-Vakzine zur Tilgung der Schweinepest in einem stark verseuchten Gebiet. **[Large-scale experiment with crystal violet swine fever vaccine in an infected district.]**—*Mh. VetMed.* **10,** 597-601. **1970**

The eradication of swine fever in a severely infected district is reported. All pigs over 2 months old—about 20,000—were vaccinated. The dosage was 5 ml. injected s/c twice in 2 weeks. All infected pigs were slaughtered. Movements of pigs within and from the district were strictly controlled.

—M.G.G.

YOUNG, G. A. & UNDERDAHL, N. R. (1955). **An evaluation of influenza in midwestern swine.**—*Amer. J. vet. Res.* **16,** 545-552. **1971**

Haemagglutination-inhibition and serum neutralization tests for swine influenza were made over a period of four years on pigs at abattoirs and from ten experiment station herds; in all, over 2,000 serum samples were examined. Although pulmonary lesions suggestive of influenza were present in from 50–70% of the pigs at abattoirs the incidence of swine influenza as indicated by the H.I. test was less than 15%. The serum neutralization test indicated a higher incidence, up to 35%. It was apparent that influenza virus caused only part of the respiratory disease present in pigs and it is suggested that the incidence of virus pneumonia of swine requires further study in the mid-western States of America. The possible relationship of influenza and other respiratory infection to losses in young pigs is discussed.

LANNEK, N. & BÖRNFORS, S. (1956). **Prophylactic treatment of enzootic pneumonia (virus pneumonia) in pigs with tetracycline and oxytetracycline.**—*Vet. Rec.* **68,** 53-55. **1972**

Controlled experiments were conducted to determine the minimum prophylactically effective oral dose of tetracycline and oxytetracycline against virus pneumonia in 2 groups of 40 pigs, each intranasally inoculated with infected material and also exposed to infection by contact. Tetracycline protected completely at about 160 mg./kg./day, and provided 50% protection at 40 mg./kg./day, but was ineffective at 8 mg./kg./day and less. Oxytetracycline produced results equivalent to those obtained with corresponding doses of tetracycline. In a field trial in 60 pigs, tetracycline afforded complete protection at 50 mg./kg./day and partial protection at 20 and at 2 mg./kg./day. [The dosage-by-body-weight figures stated in the authors' discussion and summary are roughly 10 times lower than those given in the actual tables. Recalculation from the tables has produced the figures given in the abstract above, on the authors' basis of a mean body wt. of 25 kg. for the two trials, and 50 kg. for the field trial.]

—G. P. MARSHALL.

SINGLETON, W. B. & HUNTER, F. E. (1956). **Some observations on an outbreak of distemper amongst army war dogs.**—*Vet. Rec.* **68,** 21-31. **1973**

In an army training kennel, 33 or approx. 25% of the 9-month to 2-year-old dogs passing through during a 4-month period, developed distemper. Most of the dogs had received anti-distemper serum on arrival and, about 12 days later egg adapted distemper virus vaccine. Anorexia and fever developed on an average 13 days after vaccination. Pneumonia developed in 35% and severe diarrhoea in 17%. Clinical evidence of central nervous system involvement, early in the course of the disease, was observed in only 7 dogs, but histological examination of the brains of some of the 9 dogs which died or had to be destroyed, showed evidence of viral activity. No treatment had any effect on the disease, but streptomycin did clear the naso-ocular discharge. Ferrets inoculated with the infected material showed a reaction typical of a C group virus. The more interesting cases are described.—A. ACKROYD.

SCHINDLER, R. (1955). Untersuchungen über das Interferenzphänomen bei Staupe. **[The interference phenomenon in distemper.]**—*Arch. ges. Virusforsch.* **6,** 367-373. **1974**

Ferrets survived a lethal injection of virulent distemper virus when a larger dose, in the ratio of 100 : 1, of avirulent virus was administered simultaneously. When the

avirulent injection was delayed by 24 hours, the animals died after a prolonged incubation period. One ferret survived out of two that received the apathogenic dose in the ratio of 1000 : 1.—M.G.G.

FARRELL, R. K., GORHAM, J. R. & O'NEILL, L. (1955). **The response of young mink to varying lengths of exposure to nebulized egg-adapted distemper virus (DV).** — *Vet. Med.* **50,** 412-414. **1975**

Young mink born to immunized dams were exposed to nebulized virus for periods varying from under 1 sec. to 3 min. Infection rate was 80% or more in groups exposed for 8 sec. and over.—T.E.G.R.

WEST, J. L., MCNUTT, S. H. & BRANDLY, C. A. (1956). **The adaptation of fox distemper virus to embryonating chicken eggs.** — *Cornell Vet.* **46,** 39-50. [Authors' summary modified.] **1976**

Fox distemper and mouse-adapted fox distemper virus strains were propagated on chick embryo serosa. Lesions considered characteristic but not specific were produced.

Thirty-two to 33°C. was not a satisfactory incubation temperature.

Potent, specific antiserum and the sera of animals inoculated with suspensions of infected membrane inhibited the development of chorioallantoic lesions, whilst normal fox, ferret, mouse, and human sera did not.

SCHULZE, W. & HAUKE, H. (1955). Klinische Betrachtungen zur ansteckenden Leberentzündung des Hundes. **[Clinical aspects of canine virus hepatitis.]**—*Mh. VetMed.* **10,** 603-606. **1977**

The clinical picture by which canine virus hepatitis may be diagnosed is a sharp rise in temp. lasting for 24–36 hours, catarrhal inflammation of the mucous membranes of the head, tonsillitis, and various troubles of the digestive system. Biopsy of the liver and the demonstration of antibodies will confirm the diagnosis—M.G.G.

SPLITTER, E. J., CASTRO, E. R. & KANAWYER, W. L. (1956). **Feline infectious anemia.**—*Vet. Med.* **51,** 17-22. **1978**

Following intraperitoneal inoculation of susceptible cats with pooled blood from local, apparently healthy cats in Kansas, *Bartonella*-like bodies were detected periodically on their erythrocytes, and anaemia, leucocytosis, and loss of weight developed. Infection was usually subclinical, but 10 out of 28 cats died on an average 33 days after inoculation. P.M. findings included passive congestion of the liver, and occasionally splenomegaly and icterus. The disease appeared to respond to treatment with tetracycline hydrochloride. The aetiological agent is probably identical with that reported by Flint & Moss (1953).

—A. ACKROYD.

BRAND, T. A. & FINKEL, K. C. (1956). **Cat-scratch fever.**—*Brit. med. J.* Jan. 14th, 88-91. [Authors' summary and conclusions modified.] **1979**

Three cases were described. One was fully investigated. The natural history of the disease was traced and some of the literature reviewed. The differential diagnosis was discussed. In the past the condition was no doubt variously diagnosed as TB., lymphogranuloma venereum, chronic pyogenic adenitis, glandular fever, tularaemia, or other causes of persistent adenopathy. It is probably as common in Great Britain as it is abroad.

THOMPSON, C. H., JR. (1955). **Virulent foreign Newcastle disease in partridges.**—*Vet. Med.* **50,** 399-402. **1980**

Heavy mortality in partridges imported into the U.S.A. from Spain was investigated. A highly virulent strain of Newcastle disease virus was isolated.—T.E.G.R.

MACK, W. N. & CHOTISEN, A. (1955). **Beta-propiolactone as a virus altering agent for a Newcastle disease vaccine.**—*Poult. Sci.* **34,** 1010-1013. [Authors' summary modified.] **1981**

A killed vaccine against Newcastle disease in fowls was prepared with β-propiolactone. Of 43 birds vaccinated, and challenged 16 days later, all remained free from symptoms. Of 39 unvaccinated birds, 38 developed symptoms and some died following a challenge dose of virus. Haemagglutination inhibition (HI) tests on paired blood sera from the vaccinated group revealed substantially increased HI titres. [See aslo *V.B.* **26,** 478.]

AHMED, H. N. (1955). **Treatment of Newcastle disease in Egypt.**—*J. Egypt vet. med. Ass.* January. pp. 45-54. [In English.] **1982**

Chlortetracycline and tetracycline were found to have some therapeutic value in infected chickens, 2–6 months old.—D. LUKE.

RICHTER, J. H. M. (1955). Infectieuze bronchitis? (Voorlopige mededeling). **[A disease of fowls in the Netherlands resembl-**

ing infectious bronchitis. (Preliminary communication).] — *Tijdschr. Diergeneesk.* **80,** 1296-1299. [In Dutch. English, French and German summaries.] **1983**

An account of the symptoms and differential diagnosis of a disease of fowls resembling avian infectious bronchitis. The blood of affected fowls was positive to the serum neutralization test for infectious bronchitis and negative for Newcastle disease. An injection of 200 mg. streptomycin during the peracute form of the disease had a favourable effect. Experiments on the causal agent are in hand. [See also *V.B.* **19,** 718.]—R.M.

HANSON, L. E. & ALBERTS, J. O. (1956). **Virus hepatitis in ducklings.**—*J. Amer. vet. med. Ass.* **128,** 37-38. [Authors' summary modified.] **1984**

A disease in ducklings on an Illinois duck farm in 1953 was indistinguishable from duck virus hepatitis in serum neutralization tests on chick embryos and ducklings.

MORGAN, H. R. (1956). **Latent viral infection of cells in tissue culture. I. Studies on latent infection of chick embryo tissues with psittacosis virus.**—*J. exp. Med.* **103,** 37-47. [Author's summary modified.] **1985**

Chick embryo tissues maintained for 11–28 days in Hanks' balanced salt solution lost their capacity to support the multiplication of psittacosis virus. The virus, however, infected such cells, as active multiplication of the virus occurred on the addition of ox embryo extract to this nutritionally poor medium at any period up to 28 days of cultivation in balanced salt soln. The virus remained in a state of latency for as long as 15 days in these starved cells in a non-infectious phase. These results suggest that cell nutrition as well as an alteration in the immunological defences of the host may prove to be an important factor in the activation of latent viral infections.

GIROUD, P., GIBERT, P. & ROGER, F. (1955). Nouveaux résultats concernant les réactions sérologiques vis-à-vis d'éléments néo-rickettsiens, situées à côté du groupe de la psittacose, chez des animaux du département de l'Aveyron. **[Serological reactions in domestic animals to psittacosis-lymphogranuloma antigens.]** — *Bull. Acad. vét. Fr.* **28,** 447-449. **1986**

Of 94 cows that had aborted, 34 were reactors to brucella antigen: of these 3 gave a positive and one a weakly positive reaction in the agglutination test for *Rickettsia burneti* infection. Only 2 brucella-positive cows were reactors in the complement-fixation test for viruses of the psittacosis-lymphogranuloma group ("neo-rickettsia") using 3 different antigens (T.13, X.14 and V.14); 7 cows that were negative for brucella reacted strongly to these antigens and one reacted weakly. Of 42 sheep tested, 3 were reactors to *R. burneti* and 9 to the psittacosis antigens. Of 2 sows that had aborted, one reacted to the 3 psittacosis antigens.—F.E.W.

GRANOFF, A. (1955). **Noninfectious forms of Newcastle disease and influenza viruses. Studies on noninfectious virus occurring within cells that are producing fully infectious virus.**—*Virology.* **1,** 516-532. **1987**

In chick embryos infected with N.D.V., two haemagglutinins were produced—a large one found mainly in the allantoic membrane and fluid, and a small one found mainly in the allantoic membrane. The small agglutinin was apparently non-infectious and non-haemolytic. A similar agglutinin was present in eggs infected with the P.R.8 strain of influenza virus. The pattern of growth of N.D.V. in the allantoic sac is described; the evidence suggests that there is continuous virus production for many hours after initial infection. It is considered that the small agglutinin may represent an intermediate stage in virus development.—D. LUKE.

HADDOW, A. J. (1955). EAST AFRICA HIGH COMMISSION. **East African Virus Research Institute Report, January 1954—June 1955.** pp. 28. Nairobi: Govt. Printer. **1988**

An extensive investigation was made of the growth of Rift Valley Fever virus in mice. The virus in many ways closely resembles the yellow fever virus. In the original outbreaks, and subsequently in the South African epidemics, abortion in affected cattle and sheep was common, although aborted foetuses were not tested for the virus.

Mosquitoes are known to be capable of transmitting fowl pox virus mechanically as a result of persistence of virus in the contaminated mouth parts. Fowl pox virus was inoculated direct into the thorax of a mosquito, *Aedes aegypti,* so that no contamination of the mouth parts could occur. So far no mosquito so treated has been proved to be capable of transmitting the virus by bite, but further work is necessary.—D. S. RABAGLIATI.

VOLIK, E. K. (1955). **[Utilization of the vat method for the preparation of virus vaccines.]** —*Trud. nauchno-kontrol. Inst. vet Preparatov.* **5,** 209-211. [In Russian.] **1989**

By using vats for mixing virus vaccines it was possible to obtain more concentrated and more homogeneous batches. This reduced the number of lab. animals required for testing the vaccines and eliminated the need for numerous glass vessels. Special mention is made of aluminium hydroxide vaccine against sheep pox: the time which it took to prepare it was reduced from 5 to 2 days. After satisfactory tests, 3,000 l. were prepared and used in the field. A vaccine against caprine contagious pleuro-pneumonia was also made. —F. A. ABBEY.

SINKOVICS, J. (1955). **Virus neutralisation experiments with lymphoid cell- and lymph node-extracts.**—*Acta microbiol. hung.* **2,** 385-400. [In English. Russian summary.] **1990**

In mice antibodies were produced at a high titre in the retromediastinal lymph nodes, following intranasal inoculation with influenza virus type A, or with Newcastle disease virus, but not with lymphocytic choriomeningitis virus. Inoculation with this last virus, however, increased the number of lymphoblasts and plasmoblasts, the cytoplasm of which contained increased amounts of ribonucleic acid, which is thought to be concerned in the formation of immune proteins. Further tests showed that, even when the retromediastinal lymph node was flooded with lymphocytic choriomeningitis virus, it was still capable of producing antibodies against the influenza virus.—I. W. JENNINGS.

DU TOIT, R. (1955). **Insect vectors and virus diseases.**—*J. S. Afr. vet. med. Ass.* **26,** 263-268. **1991**

A general article on the transmission of virus diseases by arthropods with some interesting historical notes. Many (but not all) of the viruses transmitted by mosquitoes are named and brief mention is made of the vector role of ticks, Nematocera and Chironomidae.—W. E. PARISH.

ANON. (1956). **An outbreak of Q fever in a rural district of Central Wales.**—*Mon. Bull. Minist. Hlth Lab. Serv.* **15, pp.** 10-17. [Abst. from summary.] **1992**

An account of an outbreak of 15 cases of Q fever in 3 villages in Cardiganshire. Epidemiological investigations revealed no evidence of case-to-case infection, nor of infection from milk, water or visits to a common environment. Serological evidence of infection with *Rickettsia burneti* was found in sheep on some of the farms.

These animals were possibly the source of the human infections.

BRION, A. & FONTAINE, M. (1956). Présence d'une rickettsiale chez les avortons et nouveau-nés de truies atteintes de rhinite atrophique. **[Presence of a rickettsia in aborted foetuses and new-born piglets from sows with atrophic rhinitis.]**—*C. R. Acad. Sci., Paris.* **242,** 209-211. **1993**

A sow with atrophic rhinitis aborted after a long journey by rail and road. The foetuses had epicardial petechiae, meningeal congestion and a friable liver with degenerative foci. Intracytoplasmic bodies, 0·3–0·5 μ diam., were observed in sections of the liver and brain; they stained red with Macchiavello stain. Two new-born piglets of another sow with atrophic rhinitis died, and they had similar lesions and intracytoplasmic bodies, 1–3 μ diam., which stained dark blue with the same stain. Inoculation experiments with mice and piglets are in hand.—R.M.

BEDSON, S. P. [Emeritus Professor of Bacteriology, London University.], DOWNIE, A. W. [Professor of Bacteriology, University of Liverpool.], MACCALLUM, F. O. [Director Virus Laboratory, Central Public Health Laboratory.] & STUART-HARRIS, C. H. [Professor of Medicine, University of Sheffield.] (1955). **Virus and rickettsial diseases.** pp. viii + 406. London: Edward Arnold (Publishers) Ltd. 2nd Edit. **30s. 1994**

Simplicity of style and conciseness have been retained in this up-to-date second edition of a very useful work on virus and rickettsial diseases of man. Reference to animal pox diseases has been largely omitted and the chapter on bacteriophage has been left out completely. The chapters on chemotherapy and poliomyelitis have been re-written and an important section on Murray Valley encephalitis has been included in the chapter on arthropod-borne virus encephalitis. A whole chapter on Coxsackie viruses replaces the former very brief section on the subject. Much of interest to the veterinary student will be found in the first few chapters, in which viruses and rickettsia, immunity and chemo-

therapy are dealt with in general terms, and also in the one on arthropod-borne diseases. References to recent and important works are found at the end of each chapter. A very useful table of laboratory diagnosis of virus infections of man is appended. The book is well indexed and attractively presented.
—T.E.G.R.

See also abstr. **2052** (composition of blood in fowls with Newcastle disease); **2140-2141** (report, Agricultural Research Council); **2142** (report, Colonial Medical Research Committee); **2143** (report, Australia); **2145** (report, Gold Coast); **2146** (report, Sierra Leone); **2147** (report, Trinidad and Tobago); **2148** (report Bechuanaland); **2149** (report, Nyasaland).

IMMUNITY

NAJJAR, V. A. & FISHER, J. (1955). **Mechanism of antibody-antigen reaction.**—*Science*. **122**, 1272-1273. **1995**

Studies on the inhibition of the enzymic activity of yeast crystalline alcohol dehydrogenase by specific rabbit antisera, led to a concept that antigen (enzyme) would combine with specific antibody *in vivo* to form a new antigenic complex which subsequently produced further antibodies. The cycle repeated itself until a complex was formed which either ceased to be antigenic or had no significant antigenic difference from the immediately preceding complex. Experimental evidence in support of the concept is given. The injection of an antigen-antibody complex into rabbits produced an antiserum that reacted more strongly with the complex than with the enzymic antigen. A complex absorbed an antiserum selectively and exhaustively, antibodies to the original antigen remaining in the supernatant. Only repeated injections of antigen produced antibodies to complexes. The enzyme, when added to antisera, formed a nucleus for succeeding complexes, which in turn absorbed their respective antibodies. According to this concept "incomplete" antibodies are those stimulated by a complex. The loss of total precipitating Rh antibody when the test is carried out on electrophoretically separated fractions may also indicate the presence of complexes.—A. E. PIERCE.

BATTY, I. & WARRACK, G. H. (1955). **Local antibody production in the mammary gland, spleen, uterus, vagina and appendix of the rabbit.**—*J. Path. Bact.* **70**, 355-363. [Authors' summary modified.] **1996**

Local production of antitoxin resulted from a single secondary injection of diphtheria or tetanus alum-precipitated toxoid (A.P.T.) directly into the tissue of the mammary gland of the rabbit. Local production of tetanus antitoxin also occurred in the spleen after a single secondary injection of tetanus A.P.T., provided that the blood supply was greatly reduced. When tetanus A.P.T. was introduced into the cavity of the uterus, vagina or appendix of primarily stimulated rabbits, antitoxin was produced in the walls of these structures. It was not possible to demonstrate local production of antitoxin in the liver.

FARHI, A. & LAMENSANS, A. (1956). Contribution à l'étude de l'action des antibiotiques sur l'immunité. III. Action de la dihydrostreptomycine sur la production d'anticorps vis-à-vis d'un antigène particulaire. [**Action of antibiotics on immunity. III. Action of dihydrostreptomycin on the production of antibodies against a particular antigen.**]—*C. R. Acad. Sci., Paris*. **242**, 206-207. **1997**

In rabbits immunized with sheep erythrocytes, the level of haemolysins in the serum was higher in those treated with dihydrostreptomycin during immunization than in untreated immunized rabbits.—R.M.

RICE, C. E. (1955). **Parallel studies of complement and blood coagulation. XV. Effect of caffeine.**—*Canad. J. comp. Med.* **19**, 305-306. **1998**

The feeding of caffeine did not prevent the decline of complement titres in g. pigs following the injection of carbon tetrachloride or the oral administration of ethionine. Complement titres were not affected by caffeine feeding itself.—A. GREIG.

GIRARD, O., PODLIACHOUK, L., EYQUEM, A. & MILLOT, P. (1956). Étude de la maladie hémolytique expérimentale du muleton. Transmission par voie placentaire. [**Experimental haemolytic disease in mule foals. Transmission by the placental route.**]—*Ann. Inst. Pasteur*. **90**, 96-100. **1999**

Of 3 mule foals born to 3 mares artificially immunized to the red cells of the donkey, one was normal, one was icteric at birth and died 30 hours later, and the other from which maternal colostrum was withheld became icteric a few hours after birth and died in 48 hours. The authors concluded that, following hyperimmunization of the mare, antibodies to red cells of the donkey can cross the placenta.—A. E. PIERCE.

FISCHER, K. & KINDLER, M. (1955). Serologische Untersuchungen bei Kaninchen-Erythroblastose. III. Blutgruppensysteme bei Kaninchen und deren Vererbung. [**Serological findings in erythroblastosis of rabbits. III. Blood groups and their inheritance.**]—*Z. Hyg. InfektKr.* **141**, 122-128. **2000**

The blood receptors R_1, r_1, R_2 and R_3 of rabbits, of which the homologous antibodies anti-R_1 and anti-r_1 can cause experimental erythroblastosis, were heat-labile. The inheritance of these factors in 96 rabbits from 20 litters followed the same rules as for the inheritance of human blood factors.—R.M.

See also absts. **1848** (anthrax vaccines); **1850-1852 & 1855-1858** (TB.); **1864** (swine erysipelas); **1870** (serum against Bact. coli and S. enteritidis infection in calves); **1871** (S. abortus-equi vaccine); **1874** (pullorum disease); **1877-1878** (brucellosis); **1885** (leptospiral serotypes); **1887** (haemolysis of sheep r.b.c. sensitized with leptospiral extracts); **1889** (Cl. chauvoei vaccine); **1891** (clostridial infections in sheep); **1893** (tetanus); **1896** (V. fetus infection); **1923** (kala-azar); **1940-1944** (F. & M. disease); **1950** Aujeszky's disease vaccine); **1952-1955** (rabies); **1958** (poliomyelitis); **1962** (African horsesickness); **1963** (rinderpest); **1968-1970** (swine fever); **1974-1975** (dog distemper); **1981** (Newcastle disease); **1986** (psittacosis-lymphogranuloma antigens in domestic animals); **1989** (vat method for preparation of virus vaccines); **1990** (virus neutralization experiments); **2008** (Fasciola antigen); **2013** (self-cure in ovine nematode infestations); **2014** (resistance to lungworms in cattle); **2077** (use of immune serum in ricin poisoning).

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

ROTH, A. R. & JOHNSON, J. B. (1955). **Tests with dieldrin as a systemic against cattle grubs.**—*J. econ. Ent.* **48**, 761-762. **2001**

Four yearling Hereford cattle were given single s/c injections of dieldrin (5% suspension in peanut oil) at 25 mg./kg., once in Jan. when *Hypoderma lineatum* larvae were present on their backs and again in March when *H. bovis* larvae were present. No adults emerged from pupae collected after treatment, whereas several emerged from those obtained from controls. Dieldrin cannot yet be recommended for control owing to the possibility of excessive residues.—D. POYNTER.

BOUVIER, G. (1956). Moyen de lutte moderne contre le varon du bétail en Suisse. [**Treatment of *Hypoderma* infestation of cattle in Switzerland.**]—*Schweiz. Arch. Tierheilk.* **98**, 14-19. [In French. English, German and Italian summaries.] **2002**

Dressing cattle affected with warbles in the beginning of the season reduced the incidence of infestation. In one district the incidence fell from 65·2% in 1946 to 32·8% in 1951. But more effective control was obtained by the additional use of an ointment containing benzene hexachloride when the cattle were on the mountain pastures in summer. By 1953 only 1·85% were parasitized and with fewer warbles per beast.
—W. E. PARISH.

CHORLEY, J. K. (1955). **Annual Report of the Director of Tsetse Fly Operations for the year ending 30th September, 1954.**—*Rhod. agric. J.* **52**, 547-557. **2003**

There was little change in the general distribution of *Glossina* spp. and in the number of cases of bovine trypanosomiasis in the areas under review. Three aircraft made 6 applications of aerosol at 14-day intervals in a dry-season concentration area, against *G. morsitans*. The unevenness of the kill was attributed to the varying types of vegetation.
—J. G. O'SULLIVAN.

KHATIN, M. G. (1953). [**Therapeutic properties of the reaction of sodium thiosulphate with sodium bisulphate in mange in farm animals.**]—*Trud. Inst. vet. Derm.* **2**, 117-153. [In Russian.] **2004**

Nascent SO_2 is liberated when a freshly-mixed paste or solution of sodium thiosulphate and sodium bisulphate is applied to the skin. Treatment with various formulations of these compounds was stated to be simple, inexpensive and effective for mange and against ticks. There are 19 illustrations of treated animals or histological sections of skin, and 4 tables.
—F. A. ABBEY.

FIEDLER, O. G. H. & DU TOIT, R. (1955). **Some observations on the control of the itch mite of sheep.** (*Psorergates ovis* Womersley). —*J. S. Afr. vet. med. Ass.* **26**, 231-235. **2005**

This infestation is widespread in S. Africa. D.D.T. and the γ-isomer of benzene hexachloride (B.H.C.) are ineffective. Tests *in vitro* indicated that several organic phosphate insecticides were active against the mite, but were too toxic for use on sheep. Malathion and the δ-isomer of B.H.C. were active, and in preliminary dipping trials each has given good results.—E. J. L. SOULSBY.

COOK, R. (1956). **Murine ear mange: the control of *Psorergates simplex* infestation.**—*Brit. vet. J.* **112**, 22-25. [Abst. from author's summary.] **2006**

An outbreak of ear mange in 2 mouse

colonies, caused by the mite, *Ps. simplex*, was eradicated by the use of dibutyl phthalate.

Hoy, J. M. (1955). **Toxicity of some hydrocarbon insecticides to earthworms.**—*N. Z. J. Sci. Tech.* Sect. A. **37**, 367-372. [Author's summary modified.] **2007**

The toxicity of D.D.T., crude benzene hexachloride (BHC), and gamma BHC to earthworms in soil was tested at various dosages. In soils containing a moderate amount of organic matter, significant mortality occurred with D.D.T. at 80 lb. *p-p*^{1} isomer per acre. Mortality was not significant with D.D.T. at 40 lb. *p-p*^{1} isomer per acre, gamma BHC at 40 lb. gamma isomer (g.i.) per acre, or crude BHC at 20 lb. g.i. per acre. In soil low in organic matter 21 lb. g.i. crude BHC killed all earthworms. These insecticides are unlikely to harm earthworms if applied at the rate of 2 lb. effective isomer per acre.

See also abstr. **1924** (report, tsetse fly and trypanosomiasis committee); **1988** (mosquitoes and fowl pox); **1991** (insect vectors of virus diseases); **2078-2079** (insecticide poisoning); **2143** (report, Australia); **2149** (report, Nyasaland).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

Masu, S. (1955). **[Studies on the protein and polysaccharide antigens of *Fasciola hepatica*.]**—*Sci. Rep. Azabu vet. Coll., Japan.* No. 2. pp. 69-78. [In Japanese. Abst. from author's English summary.] **2008**

Skin tests were carried out with protein antigen, polysaccharide antigen and filtrate antigen, each of which set up a reaction.

—T.E.G.R.

Schwetz, J. (1955). Recherches sur la bilharziose des bovidés (*Schistosoma bovis*) dans le Haut-Ituri (Région de Bunia-Irumu). **[Bovine schistosomiasis in the Belgian Congo.]**—*Bull. agric. Congo belge.* **46**, 1443-1454. [In French. Flemish summary.] **2009**

In the Bunia and Irumu districts, the incidence of human intestinal schistosomiasis is high. *Schistosoma bovis* was found in the mesenteric and hepatic veins of 8 out of 13 cattle examined in the former area. About 20% of *Physopsis* snails collected in a nearby stream were parasitized. Mice, which were partially immersed for an hour in water containing *Physopsis* shedding cercariae, passed eggs of *S. bovis* in their faeces from the 59 – 64th day. In the latter district, all of 3 cattle examined were parasitized, and mice, similarly infected, passed eggs of *S. bovis* from the 54 – 58th days.—M. L. Clarke.

Silverman, P. H. (1955). **Bovine cysticercosis in Great Britain from July, 1950, to December, 1953, with some notes on meat inspection and the incidence of *Taenia saginata* in man.**—*Ann. trop. Med. Parasit.* **49**, 429-435. [Abst. from author's discussion and summary.] **2010**

Over 99% of the 5,000–7,000 *Cysticercus bovis* infections reported each year are light infections; 98% of infected cattle harbour either degenerate or viable cysts; very few harbour both types of cyst. It appears that infections are acquired throughout the year. Close contact between susceptible cattle and infected human hosts is apparently uncommon. The av. monthly incidence of *C. bovis* detected from July 1950, to December 1953, at 45 abattoirs ranged between 0·81% and 3·47%. It is considered that these figures are closer to the true incidence than the national average of 0·21–0·58% for the same period.

Silverman, P. H. & Griffiths, R. B. (1955). **A review of methods of sewage disposal in Great Britain, with special reference to the epizootiology of *Cysticercus bovis*.**—*Ann. trop. Med. Parasit.* **49**, 436-450. [Abst. from authors' summary.] **2011**

The literature is reviewed on the ability of parasitic helminth ova to pass through various sewage-treatment processes. From a survey of sewage-disposal systems in Gt. Britain, it is concluded that tapeworm eggs can survive most sewage-treatment processes.

Observations are made on the opportunities for birds to ingest raw sewage. The results are reported of experiments to determine the fate of tapeworm eggs when ingested by various birds. In experiments with sand-filtration and 'micro-straining' (stainless-steel wire gauze) devices used for the clarification of effluent, rapid sand filtration did not retain the ova of *Taenia saginata* or *Ascaris lumbricoides*, but micro-straining under lab. conditions retained 90–95%. Circumstantial evidence suggests that the apparent increase in bovine cysticercosis in Gt. Britain may be associated with a breakdown of formerly reliable sewage-treatment systems. This is due to the increase in urban populations and in the amount of water used per person, and to the increasing use of detergents.

MILLER, W. C. & POYNTER, D. (1956). **Hydatid cysts in a Thoroughbred mare**—*Vet. Rec.* **68,** 51-53. [Authors' summary modified.] **2012**

Extensive hydatid cyst formation in a Thoroughbred brood mare is reported and certain of the clinical symptoms are discussed. The P.M. examination of 54 adult horses conducted at the Equine Research Station during the last few years revealed hydatid cysts in one.

STEWART, D. F. (1956). **'Self-cure' in nematode infestations of sheep.** — *Nature, Lond,* **176,** 1273-1274. **2013**

Direct observation of the exposed abomasum of anaesthetized sheep showed that when massive doses of exsheathed larvae of *Haemonchus contortus* were injected into the abomasum, that organ remained flaccid and normal, but in two hypersensitive sheep infested with *H. contortus* the abomasum showed increased peristalsis and segmentation within 10 min. of injection and within an hour was pale and oedematous and had contracted in diameter. The reaction began to subside in one and a half to two hours. Both hypersensitive sheep showed self-cure.

It has previously been reported that in some instances larvae of one species of nematode may cause self-cure of another species. Direct observation of the abomasum of hypersensitive sheep supports the hypothesis that there is a change in environmental conditions at the time of self-cure. The effect of the intake of larvae of one species of nematode upon existing infestations of another depends on their location in the alimentary tract; and whereas antigenic material from larvae in the abomasum can pass to the small intestine, material cannot easily pass in the reverse direction.

—T. E. GIBSON.

RUBIN, R. & LUCKER, J. T. (1956). **Acquired resistance to *Dictyocaulus viviparus*, the lungworm of cattle.**—*Cornell Vet.* **46,** 88-96. [Authors' summary modified.] **2014**

Recovery from an initial lungworm infection conferred a strong resistance to reinfection in 9 of 11 young cattle. However, acute symptoms developed in animals whose resistance was initially challenged with over 200,000 infective larvae; one animal died. Animals whose resistance was repeatedly challenged became so highly immune that administration of as many as 750,000 larvae had little or no effect. Resistance lasted for at least 7 months but diminished with the passage of time. Some of the larvae reached the lungs of resistant animals, but nearly all were usually eliminated in an immature state within 3 weeks.

TARAZONA VILAS, J. M. (1955). Estudios sobre los ciclos evolutivos y la terapéutica de las estrongilosis pulmonares ovinas. **[Life cycles and treatment of lungworms in sheep.**—*Bol. Cons. Col. vet. Esp. Suppl. cient.* **9,** 271-301; 345-362. **2015**

A detailed account of *in vitro* studies on the life cycle of *Dictyocaulus filaria, Cystocaulus ocreatus* and *Protostrongylus rufescens.* Experimental infection of a number of snails which are the natural intermediate hosts of *C. ocreatus* and *P. rufescens* formed part of the research. The eggs and the three larval stages of the worms under study are described. The treatment of verminous bronchitis in sheep is discussed and the action *in vitro* of sodium fluoride, cadmium iodide and of emetine hydrochloride on the worms and on the eggs of *D. filaria* is described.—T.E.G.R.

PANEBIANCO, F. & SCIUTTERI, G. (1955). Bronchite circoscritta da *Spiroptera sanguinolenta* (Rud. 1819) in cane. **[Bronchitis caused by *Spirocerca lupi* in a dog.]** — *Clin. vet., Milano.* **78,** 257-262. [English summary.] **2016**

A *Spirocerca lupi* nodule of the oesophagus was adherent to the surface of the lung and communicated with the bronchi by a slender fistula. The bronchi contained worms and a muco-purulent exudate.

—T.E.G.R.

SHUMARD, R. F. & EVELETH, D. F. (1955). **Piperazine citrate as an anthelmintic in domestic animals.**—*J. Parasit.* **41,** No. 6, Sect. 2. (Suppl.) p. 41. **2017**

Piperazine citrate supplied to fowls at 4000 mg. per gal. of drinking water led to the evacuation of more than 95% adult and immature forms of *Ascaridia galli.* 1000 mg. per gal. given continuously prevented infection. The drug was also effective against *Ascaris lumbricoides* in pigs and *Toxascaris leonina* in dogs. Studies in sheep were inconclusive.—D. POYNTER.

EDESON, J. F. B., WHARTON, R. H. & BUCKLEY, J. J. C. (1955). **Filarial parasites resembling *Wuchereria malayi* in domestic**

and forest animals in Malaya. — *Trans. R. Soc. trop. Med. Hyg.* **49,** 604-605. **2018**

In the course of an investigation of human filariasis due to *W. malayi* in Malaya, sheathed microfilariae resembling *W. malayi* were found in Kra monkeys *(Macaca irus),* in which the infection rate was considerably lower than in man. Similar parasites were found in the slow loris, *Nycticebus coucang* (3/20 infected), the banded leaf-monkey, *Presbytis melalophos* (1/1), the domestic dog (4/5) and the domestic cat (12/31). Adult worms were recovered from the lymphatic system of the Kra monkey, the dog and the cat. The worms found belong to the genus *Wuchereria,* but at least two species are involved, one distinct from *W. malayi* and found in a dog and a cat, and the other closer to *W. malayi* of man and found in the monkey and a cat.—T.E.G.R.

McFadzean, J. A. (1955). **Setarial infections in the Gambia, British West Africa.**—*Ann. trop. Med. Parasit.* **49,** 417-418. **2019**

Microfilariae were found in the blood of 30 out of 67 cattle from 2 herds. Of 665 slaughter cattle, 264 harboured adult *Setaria cervi.* Examination of blood samples withdrawn at 5-hour intervals from an infected cow revealed no evidence of a periodic cycle. No reports of epizootic cerebrospinal nematodiasis in the Gambia have been received.—M.G.G.

Böhm, L. K. & Supperer, R. (1955). Untersuchungen über Setarien (Nematoda) bei heimischen Wiederkäuern und deren Beziehung zur "epizootischen cerebrospinalen Nematodiasis" (Setariosis). **[Investigation into *Setaria* in ruminants in Austria and their relationship to "epizootic cerebrospinal nematodiasis".]**—*Z. Parasitenk.* **17,** 165-174. **2020**

Setaria from cattle and deer were examined and *S. tundra* was identified from roe deer. Examination of the tail of female *Setaria* from cattle and red deer revealed a series of variations indicating transitional types between *S. cervi* and *S. digitata.* The authors consider that *S. digitata* is a synonym of *S. cervi.* They suggest that the term "cerebrospinal nematodiasis" be reserved for the disease characterized by a parasite in an unnatural host, this entity being distinct from the cerebral setariasis of the natural host.

—E. J. L. Soulsby.

Pettenella, G. & Sella, A. (1955). Metodica coprologica per un corretto conteggio di uova di elminti. **[Method for the accurate counting of helminth eggs in faeces.**—*Clin. vet., Milano.* **78,** 235-241. **2021**

A special slide with 8 circular depressions in its surface is used. Each depression holds 0·0125 g. of faeces suspended in 0·2 ml. of liquid. The number of eggs in each of these depressions is counted. This is said to give more accurate results than the Stoll method.

—I. W. Jennings.

See also absts. **2080** (phenothiazine poisoning in foals); **2143** (report, Australia); **2148** (report, Bechuanaland); **2149** (report, Nyasaland).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

Eikmeier, H. & v. Sandersleben, J. (1955). Krebs der Tonsillen mit ausgedehnter Metastasenbildung bei einem Hund. **[Carcinoma of the tonsils with metastasis in a dog.]**—*Wien. tierärztl. Mschr.* **42,** 886-893. [English, French and Italian summaries.] **2022**

Clinical and pathological details are given of a case of carcinoma of both tonsils of an 8-year-old dog, with local pharyngeal deposits, and metastases in the lungs, spleen, myocardium and kidneys.—E. Cotchin.

Krook, L. (1956). **On gastrointestinal carcinoma in the dog.**—*Acta path. microbiol. scand,* **38,** 43-57. [In English. Author's summary modified.] **2023**

Four new cases of gastric carcinoma and 10 of intestinal carcinoma in dogs are reported. The data of all known cases are analysed with regard to frequency, age, type, sex ratio, site, relationship to ulcers and chronic inflammation, and metastasizing disposition.

Überreiter, O. (1955). Die Geschwülste des Darmes beim Hunde. **[Intestinal tumours in dogs.]**—*Wien. tierärztl. Mschr.* **42,** 893-904. [English, French and Italian summaries. English summary modified.] **2024**

Of 3,040 neoplasms found at operation 15 were of the intestine. Of the 13 rectal neoplasms 8 were benign (4 adenomas, 3 fibromas, 1 myoma), and 5 malignant (2 carcinomas, 1 fibrosarcoma, 2 round-cell

sarcomas). Radical operation was carried out in 12 dogs, 10 of which recovered. The author discussed the clinical manifestations of rectal tumours and described the different operation techniques, emphasizing the advantages of the artificial prolapse method.

ZIEGENHAGEN, G. & DÖHMEN, H. (1955). Über den Wert der morphologischen Beurteilung der Leukozyten für die Diagnose der Rinderleukose. **[Value of morphological examination of leucocytes in the diagnosis of bovine leucosis.]**—*Dtsch. tierärztl. Wschr.* **62,** 532-534. **2025**

From a study of healthy, leucotic or otherwise diseased cattle, it was found that, whereas Götze's "Leukoseschlüssel" (for which the total w.b.c. count, and the percentage of lymphocytes and lymphocyte-like cells, are estimated) was capable of giving an exact diagnosis of leucosis in some 90–95% of cases, it was generally impossible to make a certain diagnosis merely from a morphological study of the blood cells. Neither lymphoblasts, lymphoidocytes, spindle cells, Rieder cells, nor paralymphoblasts [all of which are illustrated in colour plates] could be considered to be specific for leucosis. Paralymphoblasts, however, did seem to be particularly related to the rare, acute immature-cell form of lymphatic leucosis.—E. COTCHIN.

I. COLES, R. & UNDERWOOD, J. R. (1954). **Hatchability of hen eggs and lymphomatosis.**—*Nature, Lond.* **173,** 877-878. **2026**

II. COLES, R. (1955). **Some observations on breeding fowl resistant to lymphomatosis.**—*Poult. Sci.* **34,** 312-322. **2027**

I. & II. The fertility of flocks which showed resistance to lymphomatosis was compared with that of flocks which were susceptible to the disease. The authors interpreted their findings as indicating that fowls resistant to the disease were less fertile than susceptible fowls.—R.M.

HUTT, F. B. & COLE, R. K. (1955). **Resistance to lymphomatosis in the fowl in relation to reproduction.**—*Nature, Lond.* **176,** 1178-1179. **2028**

The authors criticized the conclusions of Coles & Underwood [see preceding abst.], and pointed out the possibility of error in interpreting results through selecting relatively small families of birds. They quoted results of their own experiments, in which at least ten daughters of each dam were tested, which showed that fowls resistant to lymphomatosis were no less fertile than fowls which were not resistant.—R.M.

BURMESTER, B. R. (1955). ***In vitro* and *in vivo* neutralization of the virus of visceral lymphomatosis.**—*Proc. Soc. exp. Biol., N.Y.* **90,** 284-286. **2029**

In the serum of hens injected serially with virulent virus of visceral lymphomatosis, antibodies developed which neutralized the oncogenic activity of the virus *in vitro,* and, when the serum was injected into chicks, it produced a passive immunity.—A. ACKROYD.

NUTRITIONAL AND METABOLIC DISORDERS

GARCIA-RIVERA, J. & MORRIS, M. P. (1955). **Oxalate content of tropical forage grasses.**—*Science.* **122,** 1089-1090. **2030**

Determination of the oxalate content of 24 species revealed that the most widely used grasses contained the highest concentrations (over 1·6% oxalic acid, dry weight).—M.G.G.

CLIFFORD, R. J., HENDERSON, G. N. & WILKINS, J. H. (1956). **The effect of feeding penicillin and vitamin B_{12} to mature debilitated horses.**—*Vet. Rec.* **68,** 48-51. [Abst. from authors' conclusions.] **2031**

The use of penicillin supplement alone over a period of 9 weeks had no effect on the visible condition of 6 debilitated horses, kept and worked under identical circumstances, on a comparatively low protein diet. There was a distinct improvement in 4 of these horses and in 7 others after 8 weeks' feeding of B_{12} supplement with a higher energy diet.

MYERS, K. (1955). **Coprophagy in the European rabbit (*Oryctolagus cuniculus*) in Australia.**—*Aust. J. Zool.* **3,** 336-345. **2032**

Soft faecal pellets are formed and ingested when rabbits are below ground from dawn until late afternoon. Feeding on the surface then commences, normal pellets are produced and coprophagy ceases. Coprophagy may be of greatest importance in summer when green feed is scarce and rabbits spend a greater proportion of the day below the ground.—R. I. SOMMERVILLE.

FRANKLIN, M. C., BRIGGS, P. K. & MCCLYMONT, G. L. (1955). **The utilization of low-**

quality pasture.—*J. Aust. Inst. agric. Sci.* **21,** 216-228. **2033**

Young, succulent pasture or green-feed oats of high energy and protein content and rich in minerals and carotene may, under some conditions, fail to promote optimum production when grazed by sheep, because it is deficient in vitamin D_2. Experiments were carried out with Merino sheep to study methods of utilizing low-quality roughage more efficiently. The roughage varied in protein content from 1·2 to 3%. The effect of supplements on roughage consumption, wool production, mortality rate and the economics of drought feeding are given.

—M. C. Franklin.

Hewes, C. G. (1955). **The influence on the growth and progeny of the guinea pig resulting from oral administration of aureomycin (chlortetracycline) and penicillin.**—*J. Nutr.* **57,** 353-360. [Abst. from author's summary.] **2034**

First-litter progeny of treated g. pigs showed a slight increase in mean birth weight over first-litter progeny of controls. However, this increase was not apparent after 6 weeks of daily administration to the young of 0·1 mg. of the drugs. No other effects on reproduction were observed.

Male g. pigs fed 0·3 or 0·5 mg. of aureomycin daily showed a significant av. wt. gain over controls after 9 weeks.

Slinger, S. J. & Pepper, W. F. (1955). **Effect of water intake on the growth response of poults and chicks to penicillin.**—*J. Nutr.* **57,** 319-328. [Abst. from authors' summary.] **2035**

In general, chicks and poults fed penicillin needed less water than controls. Increased water intake was not necessary to elicit the growth response to penicillin.

Gordon, R. S. & Sizer, I. W. (1955.) **Ability of sodium sulfate to stimulate growth of the chicken.**—*Science.* **122,** 1270-1271. **2036**

The growth of fowls was not improved by 0·5% sodium sulphate in the diet; but when the sulphates of Mg, Mn and Cu in the diet were replaced by the corresponding oxides or chlorides, sodium sulphate improved growth and feed efficiency. Feathers from birds that received radioactive sulphate for 10–14 days, were radioactive. Fowls retained initially 50–75% of a dose of radioactive sulphate, and after 10–14 days 15–30% had not been excreted.—M.G.G.

Wright, E. (1955). **The uptake of phosphorus by the sheep. I. The excretion of injected radiophosphorus. II. The availability of the phosphorus of a diet of hay and concentrates.** —*N.Z. J. Sci. Tech.* Sect. A. **37,** 332-348. [Author's summary modified.] **2037**

I. It was shown that (a) there is a variable time lag between urinary and faecal excretion, (b) there is a daily rhythm of excretion, and (c) the specific activity of the urine may be used to estimate the endogenous specific activity of the faeces.

II. The absorption of dietary phosphorus varied widely from day to day, and from sheep to sheep, with a maximum of 100%. The only significant correlations between intake and excretion were between phosphorus absorption and phosphorus equilibrium. This was associated with a regression co-efficient of approx. one. It is postulated that, under the conditions of the experiment, the phosphorus equilibrium was determined not by excretion but by the control of absorption by unspecified factors.

Jensen, W. N., Bush, J. A., Ashenbrucker, H., Cartwright, G. E. & Wintrobe, M. M. (1956). **The kinetics of iron metabolism in normal growing swine.**—*J. exp. Med.* **103,** 145-159. **2038**

Plasma and r.b.c. turnover rates were determined in 18 healthy growing pigs using Fe^{59}. The mean time for disappearance of half the iron from the plasma was $1{\cdot}19 \pm 0{\cdot}26$ hours and the rate was exponential. The mean turnover rate of iron in the plasma was $1{\cdot}11 \pm 0{\cdot}34$ mg./kg./day. The average max. incorporation of Fe^{59} into r.b.c. was $92 \pm 9\%$, the true mean turnover rate of iron in the r.b.c. $0{\cdot}59 \pm 0{\cdot}19$ mg./kg./day and the average "apparent" life span of r.b.c. 63 ± 16 days.—D. Poynter.

Hartman, R. H., Matrone, G., Wise, G. H. (1955). **Effect of high dietary manganese on hemoglobin formation.**—*J. Nutr.* **57,** 429-439. [Authors' summary modified.] **2039**

In two experiments young growing lambs were depleted of iron either by an iron deficient diet or by a combination of the diet and phlebotomy. In the first experiment, a whole milk diet fortified with iron, copper, cobalt and vitamins A and D was supplemented with various levels of manganese. A level as low as 45 p.p.m. decreased haemoglobin and serum iron. Higher levels of Mn up to 5,000 p.p.m., were associated with

decreased concentrations of iron in the liver, spleen and kidney. In the second experiment anaemic lambs were fed a roughage diet supplemented with 3 levels of Mn, 0, 1,000, and 2,000 p.p.m. Hb regeneration was markedly retarded and serum iron depressed in lambs fed diets containing either 1,000 p.p.m. or 2,000 p.p.m. of Mn. The results indicate that Mn interferes with iron absorption rather than with haematopoiesis. It is postulated that excessive Mn antagonizes the enzyme systems that oxidize or reduce iron at the site of absorption.

LUECKE, R. W., HOEFER, J. A. & THORP, F., JR. (1955). **Mineral interrelationships in parakeratosis of swine.**—*J. Anim. Sci.* **14,** 1215. **2040**

Feeding of experimental diets to pigs indicated that calcium was one of the predisposing factors in parakeratosis and that zinc would prevent the onset of the condition.

—W. E. PARISH.

LEWIS, P. K., JR., HOEKSTRA, W. G., GRUMMER, R. H. & PHILLIPS, P. H. (1955). **Factors affecting the behavior of parakeratosis in swine.**—*J. Anim. Sci.* **14,** 1214-1215. **2041**

A summary of a series of experiments in which pigs were fed a standard diet of known composition and to which certain supplements were added to test their effect on parakeratosis. The addition of antibiotics, monosodium phosphate, brewers' yeast or dried skim milk did not increase weight gains, but the severity of the skin condition was alleviated with the phosphate ration. Three high calcium diets (1·29% calcium), containing calcium in different forms, decreased weight gains and hastened onset of parakeratosis. The addition of 50 p.p.m. zinc to the ration increased weight gains and improved the skin condition but did not cure it. For treatment, zinc added to the diet at 100 and 500 p.p.m. improved weight gains, as did a daily injection of 1 mg. or 2 mg. zinc per lb. body weight for 10 days.

—W. E. PARISH.

O'DONOGHUE, J. G. (1955). **Vitamin A deficiency in beef cattle.**—*Canad. J. comp. Med.* **19,** 367-372. **2042**

The symptomatology of vitamin A deficiency is discussed. The author has divided his cases into three groups and discusses each one briefly. Prophylactic and therapeutic measures are mentioned.—THOMAS MOORE.

BUNNELL, R. H., MATTERSON, L. D., SINGSEN, E. P., POTTER, L. M., KOZEFF, A. & JUNGHERR, E. L. (1955). **Studies on encephalomalacia in the chick. III. The influence of feeding or injecting various tocopherols and other antioxidants on the incidence of encephalomalacia.**—*Poult. Sci.* **34,** 1068-1075. [Authors' conclusions modified.] **2043**

Antioxidants were tested for their ability to prevent encephalomalacia in chicks, and several were found to be as effective as diphenyl-p-phenylenediamine (DPPD). These were: 2,6-ditertiary butyl-4-methoxy phenol; dibutyl and diamyl hydroquinones; di-sec-butyl-p-phenylenediamine; and 1,2-dihydro-2,2,4-trimethyl-6-ethoxyquinoline ("santoquin").

I/m injection of DPPD prevented encephalomalacia, and, while not equivalent to vitamin E on a molar basis, it was nearly so on a weight basis.

When injected, δ–tocopherol did not prevent encephalomalacia, whilst the protection afforded by γ-tocopherol nearly equalled that of α-tocopherol.

SINGSEN, E. P., POTTER, L. M., MATTERSON, L. D., BUNNELL, R. H., KOZEFF, A. & JUNGHERR, E. L. (1955). **Studies on encephalomalacia in the chick. IV. The influence of oil in fish meal, oils from various species of fish, and animal fats on the incidence of encephalomalacia.** — *Poult. Sci.* **34,** 1075-1079. [Authors' conclusions modified.] **2044**

The effectiveness of a fish oil in causing encephalomalacia is correlated with its iodine number, which reflects the degree of unsaturation of the oil. The addition of from 0·5% to 1·0% of a highly unsaturated fish oil to a diet low in vitamin E, caused encephalomalacia in vitamin E-deficient chicks. The oil in menhaden fish meal was as effective in producing encephalomalacia as extracted menhaden oil.

The fat in samples of meat and bone scrap, and unstabilized yellow grease with an iodine number of 54 did not cause encephalomalacia.

ULLREY, D. E., BECKER, D. E., TERRILL, S. W. & NOTZOLD, R. A. (1955). **Dietary levels of pantothenic acid and reproductive performance of female swine.**—*J. Nutr.* **57,** 401-414. [Abst. from authors' summary.] **2045**

The effect of 4 dietary levels of pantothenic acid on the reproductive performance

of female swine was investigated. After 4 weeks of pantothenate depletion, 32 sexually mature gilts were grouped so as to receive 1·5, 5·9, 12·5, or 19·1 mg. of pantothenic acid per kg. of diet. An intake of 1·5 or 5·9 mg. did not prevent the development of pantothenate-deficiency symptoms. Gilts fed at the 5·9-mg. level conceived, but gave birth to abnormal piglets. Reproductive performance, as measured by the average litter weaning weights, was lowest for animals receiving 5·9 mg. or less. It appears that 12·5 mg. of pantothenic acid per kg. of diet will support normal reproduction of female pigs.

HARRIS, J. R. & CLARKSON, T. B. (1955). **Prevention of relapses in milk fever.**—*Vet. Med.* **50,** 696-698. **2046**

Hypocaleaemia in milk fever is attributed to dysfunction of the parathyroids. Recurrence after calcium therapy is considered to be due to excretion of the calcium before normal parathyroid function is resumed. The authors recommend calcium gluconate i/v, for the immediate alleviation of symptoms, and dihydrotachysterol (10 mg. i/m) to maintain the blood calcium at a sufficiently high level. Of 328 cases so treated only 7 had a recurrence.—T.E.G.R.

ADLER, J. H. & DYE, J. A. (1956). **On the mechanism of ketogenesis in ruminants.**—*Cornell Vet.* **46,** 58-63. [Abst. from authors' summary.] **2047**

The processes involved are:— loss of oxalacetate precursors to the foetus or milk, and excessive absorption of ketogenic fatty acids.

MORRIS, R. G. & HALL, C. E. (1956). **A preliminary report on the use of meticorten in bovine ketosis.**—*J. Amer. vet. med. Ass.* **128,** 132-134. **2048**

"Meticorten" (a new corticosteroid) was used in doses of 100–400 mg. in 40 cattle affected with ketosis; 36 responded to a single inj. After treatment blood glucose values and milk production rose to normal.—D. POYNTER.

See also abstr. **1847** (nutritional disturbances and susceptibility of mice to staphylococcal infections); **2143** (report, Australia).

DISEASES, GENERAL

WHITLOCK, J. H. (1955). **The evaluation of pathological growth and parasitic disease.**—*Cornell Vet.* **45,** 411-422. **2049**

A discussion of the difficulties in the analysis and evaluation of data from sick animals.—T.E.G.R.

FORD, E. J. H. (1956). **A survey of turkey mortality.**—*Brit. vet. J.* **112,** 3-13. [Author's summary modified.] **2050**

In 3 turkey flocks, over a two-year period, mortality was 10%, 2·6% and 13·3% of poults hatched. The important causes of loss were navel infection, coccidiosis, gizzard impaction, gizzard erosion, ulcerative enteritis, with a large number of undiagnosed cases. The cause of ulcerative enteritis was not revealed, but a transmissable agent was suspected.

MARTIN-SCOTT, I. (1955). **Contagious skin diseases of animals and man.**—*Vet. Rec.* **67,** 883-889. Discussion: pp. 892-894. **2051**

A brief account of skin diseases transmissible from animals to man, with reference to the literature.—W. S. MARSHALL.

SQUIBB, R. L., BRAHAM, J. E., GUZMAN, M. & SCRIMSHAW, N. S. (1955). **Blood serum total proteins, riboflavin, ascorbic acid, carotenoids and vitamin A of New Hampshire chickens infected with coryza, cholera or Newcastle disease.**—*Poult. Sci.* **34,** 1054-1058. [Authors' summary modified.] **2052**

Coryza in fowls of different ages and sex significantly reduced the serum ascorbic acid, total carotenoids and vitamin A. Serum protein levels were raised, little or no effect was observed on riboflavin levels. Fowl cholera infections resulted in rapid mortality. Serum total protein and ascorbic acid levels were raised while total carotenoids and vitamin A levels were significantly depressed. A depression of serum amylase activity was also observed. Newcastle disease significantly reduced total serum protein, vitamin A and carotenoids and raised ascorbic acid levels; no effect was observed on riboflavin levels.

The findings suggest that the value of nutritional measures in therapy and prophylaxis for coryza and fowl cholera should be investigated.

KUBIN, G. (1955). Zur Anwendung der Grosschen Probe beim Rind. **[A serum turbidity test as a diagnostic aid in some cattle diseases.]**—*Wien. tierärztl. Mschr.* **42,** 554-564. [English, French and Italian summaries.] **2053**

To 1 ml. of fresh, centrifuged serum is added Hayem's solution (H.s.), until an irreversible turbidity appears. The serum from young cattle requires more H.s. to produce this effect than that from aged cattle. From tests on 406 cattle it was concluded that the production of turbidity by less than 2 ml. constitutes evidence of a pathological process. The test is not specific, but is considered to be of value in the diagnosis of TB.—M.G.G.

NANDI, S. N. (1955). **Bovine haematuria in Darjeeling district and its treatment.**—*Indian vet. J.* **32,** 202-207. **2054**

N. suspected that *Corynebacterium renale* was the cause of the disease and claimed successful treatment with penicillin, the urine becoming free from r.b.c. within 10 days.

—R. N. MOHAN.

SEIBOLD, H. R. (1956). **The pathology of mucosal disease in Alabama.**—*J. Amer. vet. med. Ass.* **128,** 21-26. [Author's summary modified.] **2055**

The lesions can be grouped into 2 categories: those in the anterior digestive tract, and those in the gastro-intestinal mucosae. The lesions in the former are areas of necrosis in the stratified squamous epithelium. The smallest are slightly raised, white foci; the larger ones become eroded and appear as shallow ulcers. The lesions in the gastro-intestinal mucosae consist of circulatory disturbances and damage of the epithelial lining of the intestinal glands, and are most severe in the ileum, caecum, and colon. They appear as congestion and haemorrhages in the lamina propria, excess mucus secretion, and necrotic pseudomembranes. Damaged submucous glands in the colon become cystic. Almost complete loss of intestinal glands can occur in some areas. Actual necrosis of the mucosae may develop where the lamina propria becomes invaded by bacteria.

HOLLISTER, C. J., FAGAN, R. & ARNOLD, M. W. (1956). **"Muzzle disease". A clinical entity in cattle in southern Pennsylvania and Delaware.**—*J. Amer. vet. med. Ass.* **128,** 70-72. [Authors' summary modified.] **2056**

The aetiology and mode of transmission are unknown. The manifestations differ from those of mucosal diseases particularly in the morbidity, mortality, and seasonal prevalence, as well as in the absence of diarrhoea, and presence of udder, teat and foot lesions. Animals with severe infection also have extensive incrustations of the skin.

MOLL, T. & BRANDLY, C. A. (1954). **Pneumonia-enteritis of the newborn calf. I. Clinical manifestations of the disease.**—*Vet. Med.* **49,** 512-516. **2057**

MOLL, T. & BRANDLY, C. A. (1955). **Pneumonia-enteritis of the newborn calf. II. Pathological alterations. III. The reproduction and transmissibility of the disease.**—*Ibid.* **50,** 63-68 & 101-106, 110 & 113. **2058**

I. The disease, of unknown aetiology, is prevalent among new-born calves in Wisconsin. It is characterized by enteritis, and in its clinical manifestations is similar to calf scours and allied enteric diseases of newborn calves.

II. Lesions were observed in the lungs, kidneys, liver, spleen, intestinal walls and mesenteric lymph nodes. The associated changes in the early acute stages were congestion, oedema, degeneration and vascular damage. These were followed by a progressive, interstitial, mononuclear cell infiltration which was most marked in the lungs. In the later stages there were signs of interstitial fibrosis and broncho-pneumonia.

III. The condition was reproduced experimentally in new-born calves, by contact, by intranasal inoculation and by simultaneous intravenous and intranasal inoculation with bacteria-free blood, suspensions of lung, mesenteric lymph nodes and intestinal mucosa. Susceptibility seemed to decrease with age and with ingestion of colostrum which mitigated the disease. The aetiology of the condition remained obscure.—T.E.G.R.

ORR, A. E. (1956). **Inguinal hernia in sheep.**—*Vet. Rec.* **68,** 2-4. [Author's summary modified.] **2059**

A discussion of methods of correcting inguinal hernia, particularly in Blackface shearling rams. The technique now adopted as standard is described in detail.

WHITNEY, J. C. (1955). **Eosinophilic myositis in dogs.**—*Vet. Rec.* **67,** 1140-1143. [Author's summary modified.] **2060**

The literature is reviewed, and 4 new cases, all in Alsatians, are recorded. In one case the oesophagus was involved in addition to the masticatory muscles. The mandibular nerve was examined, but no lesions were observed. One case was treated with adrenocorticotrophic hormone and responded well.

ANDRÉ, T. (1955). **Enlargement of the heart with congestive heart failure in dogs. An analysis of the clinical picture of 24 cases**

with special regard to the electrocardiogram.—*Nord. VetMed.* **7,** 905-916. [In English. German and Swedish summaries.] **2061**

Cough and fatigue were the commonest clinical symptoms of 24 dogs with congestive heart disease and 20 had hyperaemia and oedema of the lungs. Electrocardiography showed depression of the ST segments, increased QRS intervals and depression of the T-waves; the QRS complex reached high amplitudes. P.M. examination of 12 of these dogs revealed dilatation of both ventricles in 11 and also hypertrophy of both ventricles in seven.—E.V.L.

McKay, W. M. & Pelly, A. V. (1956). **The treatment of "pullet disease" in fowls.**—*Brit. vet. J.* **112,** 76-78. [Authors' summary modified.] **2062**

An outbreak of pullet disease is described. Supplementation of the diet with high levels of aureomycin hydrochloride yielded good results.

Moultrie, F., Cottier, G. J. & King, D. F. (1955). **Additional evidence for genetic variation in resistance to "blue comb" disease.**—*Poult. Sci.* **34,** 458-461. [Authors' summary modified.] **2063**

Analyses of mortality records obtained during an outbreak of blue comb disease in White Leghorn fowls revealed significant differences in susceptibility between sire families. No evidence was found to indicate a correlation between susceptibility to blue comb and susceptibility to death from other causes.

Dardiri, A. H., Zaki, O. & Reid, W. M. (1955). **Mortality due to omphalitis following air shipment of baby chicks.**—*Poult. Sci.* **34,** 327-330. [Abst. from authors' summary.] **2064**

Omphalitis appeared in 4 separate air cargoes of chicks. Highest mortality occurred within 2–6 days after arrival. The condition may have been induced by changes in air pressure. Total mortality during 3 weeks of brooding did not exceed 2·7% in the 1st shipment, 2·5% in the 2nd, 5·1% in the 3rd and 4·3% in the 4th. Bacteriological studies on 50 chicks revealed the following organisms: *Pseudomonas pyocyanea, Proteus morgani, Bacterium aerogenes, Bact. alkaligenes,* a species of *Clostridium,* and one of *Corynebacterium.*

Steffee, C. H. & Snell, K. C. (1955). **Dissecting aortic aneurysm in hamsters treated with cortisone acetate.**—*Proc. Soc. exp. Biol., N.Y.* **90,** 712-714. [Authors' summary modified.] **2065**

Massive thoracic or abdominal haemorrhage occurred in 51 of 77 hamsters treated for 26 to 162 days with cortisone acetate. All these animals bore implants of human foetal tissue. Histological section of 26 revealed dissecting aortic aneurysm in 23 and necrotizing arteritis in 3. Six out of 15 non-transplant-bearing hamsters treated with cortisore died with microscopically proved dissecting aortic aneurysm.

Beaven, D. W. & Murphy, E. A. (1956). **Dissecting aneurysm during methonium therapy. A report on nine cases treated for hypertension.**—*Brit. med. J.* Jan. 14th, 77-80. [Abst. from authors' summary.] **2066**

In 9 patients with hypertension, who died after s/c injections of hexamethonium or pentolinium, P.M. examination revealed dissecting aneurysm of the aorta. It is considered that treatment may have induced the condition.

Menkin, V. (1955). **Pyrexin, the pyrogenic factor of inflammatory exudates, and its relation to some bacterial pyrogens.**—*J. Lab. clin. Med.* **46,** 423-442. **2067**

Pyrexin, the pyrogenic factor of primarily acid exudates, appears to be the result of interaction between bacterial pyrogen and the euglobulin fraction of the plasma. Repeated doses of it do not produce tolerance and the view that it is a pyrogen contaminant does not find support in the present studies. Like bacterial pyrogens, it causes fever, an initial leucopenia and, subsequently, leucocytosis.

—T.E.G.R.

Haley, T. J., McCulloh, E. F., McCormick, W. G., Trum, B. F. & Rust, J. H. (1955). **Response of the burro to 100 r fractional whole body gamma ray irradiation.**—*Amer. J. Physiol.* **180,** 403-407. **2068**

Ten donkeys were exposed to 100 R daily Co^{60} gamma ray whole body irradiation. There was pronounced lymphopenia one hour after the first 100 R dose, significant hyperferraemia after 400 R, generalized bleeding from small wounds on the 21st day and high iron content of the plasma at death.—E.V.L.

See also abst. **2152** (shock and circulatory homeostasis).

POISONS AND POISONING

López Herrera, C. (1955). Análisis químico-toxicológico de un caso de fluorosis industrial en ganado del norte de España. **[Chemical analysis in an outbreak of industrial fluorosis in cattle in northern Spain.]**—*Rev. Patronato Biol. anim., Madrid.* **1,** 357-367. **2069**

Industrial fluorine poisoning in cattle is discussed and a colour index test for the quantitative estimation of fluorine in bone ash is described. Bones from 3 cattle slaughtered at different stages of fluorine poisoning were subjected to the test and the fluorine contents per 100 g. of ash were :— 1·8, 1·8 and 1·4 g.
—T.E.G.R.

Feltman, R. & Kosel, G. (1955). **Prenatal ingestion of fluorides and their transfer to the fetus.**—*Science.* **122,** 560-561. **2070**

Tests were conducted with 4 groups of pregnant women. A group of 20 received daily one tablet of calcium fluoride (2 mg.) or of sodium fluoride (2·2 mg.); a group of 6 drank fluoridated water; the other 2 groups acted as controls. Blood from the umbilical cord and tissue from the periphery of the placenta were examined. In the group receiving tablets, the average fluoride concentration in the blood was 41 μg./100 ml., and in the placenta 111 μg./100 g. (controls 17 μg./100 ml. and 101 μg./100 g.). In the second test group, the av. fluoride conc. in the blood was 38 μg./100 ml., and in the placenta 85 μg./100 g. (controls 22 μg./100 ml. and 68 μg./100 g.).—M.G.G.

Lewis, E. F. & Meikle, J. C. (1956). **The treatment of acute lead poisoning in cattle with calcium versenate.**—*Vet. Rec.* **68,** 98-99. [Abst. from authors' summary.] **2071**

An account of the successful treatment of acute lead poisoning in 2 Jersey heifers with calcium versenate (the calcium disodium salt of ethylenediamine tetraacetic acid). Two 6-g. doses of the drug in 500 ml. glucose saline were given s/c or preferably i/v to each heifer. [See also *V.B.* **24,** 559 and 1226.]

Tyndale-Biscoe, C. H. (1955). **Effects of sub-lethal phosphorus poisoning on bone growth in wild rabbits.** — *N.Z. J. Sci. Tech.* Sect. B. **37,** 407-415. [Author's summary modified.] **2072**

Abnormal bone growth is described in 10 out of 200 wild rabbits collected from an area where phosphorized pollard had been used 3 months previously. The implications of this to the use of phosphorus as a rabbit poison are discussed. It is suggested that the particle size of the phosphorus may have been an important factor in the rabbits' recovery.

Pile, C. H. (1956). **Thallium poisoning in domestic felines.**—*Aust. vet. J.* **32,** 18-19. **2073**

The clinical syndrome in naturally and experimentally poisoned cats consisted of gastro-intestinal upset and lethargy later superseded by hyperaesthesia and other indications of nervous derangement. A characteristic lesion is loss of hair and development of a dry, cracked, erythematous condition around the mouth and eyes.
—R. Barry.

Bohosiewicz, M. (1956). Zatrucia indyków solą kuchenną. **[Sodium chloride poisoning in turkeys.]**—*Méd. vét., Varsovie.* **12,** 103-104. [In Polish.] **2074**

An account of 3 outbreaks with a high mortality rate. The onset was sudden, a number of birds being found dead in the morning and others with symptoms of dulness and diarrhoea. The outstanding P.M. lesions were congestion of the liver, peeling of the mucosa of the crop, petechiae on the epicardium, and haemorrhagic enteritis. In one outbreak 3·36% chloride as NaCl was found in the crop contents of a dead turkey, and 1·34% in a sick bird which was destroyed. The corresponding figures in the other two outbreaks were 1·82% and 0·85%.—M. Gitter.

Kirby, N. G. (1955). **Sodium-nitrite poisoning treated by exchange transfusion.**—*Lancet.* **268,** 594-595. **2075**

This case-report revealed that certain types of "machine oil" consist of an emulsion of sodium nitrite solution and oil. A child who accidentally ingested quite a small amount of such oil would probably have died from nitrite poisoning but for prompt diagnosis and treatment.—R.M.

Patrick, R. S. (1955). **The influence of cortisone and ACTH on experimental zonal necrosis of the liver.**—*J. Path. Bact.* **70,** 377-385. [Author's summary modified.] **2076**

Young rats and mice receiving daily doses of cortisone or ACTH were given a single

sublethal dose or carbon tetrachloride or tannic acid and compared with control animals which received liver poison or hormone alone. The usual mesenchymal reaction in livers damaged by these liver poisons was inhibited by cortisone and ACTH. The process of repair, although retarded, occurred eventually in spite of continued administration of the hormones. The addition of casein to the diet failed to modify the deleterious effects of the hormone treatment.

CLARKE, E. G. C. & JACKSON, J. H. (1956). **The use of immune serum in the treatment of ricin poisoning.**—*Brit. vet. J.* **112,** 57-62. [Authors' summary copied *verbatim.*] **2077**

Experiments are described which show that the effects of ricin poisoning in mice may be counteracted by the prompt administration of immune goat serum.

BORCHERT, A. (1955). Untersuchungen von kontaktinsektizidvergiftetem Material im Jahre 1954. **[Examination of material from animals poisoned by contact insecticides during 1950.]**—*Mh. VetMed.* **10,** 610-612. **2078**

The fly, *Drosophila melanogaster,* has been used to reveal contact insecticides in human, animal and vegetable material, and in soil. Laboratory-reared flies, a few hours old, are introduced into tubes containing methanol, alcohol or acetone extracts of the material. A positive result is the death of 80–100% of the flies after 24 hours at room temp. If 50% are apparently healthy after 24 hours, the result is considered doubtful.—M.G.G.

FAHEY, J. E., BRINDLEY, T. A. & SPEAR, M. L. (1955). **DDT residues in fat from steers pastured on corn stover in DDT-treated fields.**—*J. econ. Ent.* **48,** 606-607. **2079**

Three steers, free from D.D.T. contamination, were moved into a maize-field, which had been sprayed with D.D.T. 16 weeks previously. Samples of material from this field contained 23·3 p.p.m. of D.D.T. (undried wts.). The steers were removed from the field 2 months later, when biopsy samples of their loin fat contained approx. 5 p.p.m. of D.D.T. The D.D.T. content of the fat then diminished rapidly, and after 3 months only 0·1 p.p.m. or less was found in biopsy samples.—M.G.G.

PRITULIN, P. I. (1955). **[Winter intoxication of horses with phenothiazine.]**—*Veterinariya, Moscow.* **32,** No. 10, pp. 40-42. [In Russian.] **2080**

In eastern Siberia 1,350 foals were each given 40–60 g. phenothiazine during March—a period when there are sharp fluctuations in environmental temp. Thirty of them became ill 2–3 days after dosing and 22 died. P. described the symptoms and P.M. findings. An alkaloid was detected in the organs and stomach contents of the foals and experimentally poisoned rabbits; it was suggested that this was derived from phenothiazine and was responsible for the poisoning.—R.M.

See also absts. **2082** (toxicity of antibiotics for hamsters); **2143** (report, Australia); **2148** (report, Bechuanaland); **2149** (report, Nyasaland).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

FULLER, A. T. (1955). **A new antibiotic of bacterial origin.**—*Nature, Lond.* **175,** 722. **2081**

An extract of cultures of a spore-bearing organism of the *Bacillus pumilus* group, isolated from soil, had antibiotic properties. It inhibited *Staphylococcus aureus* at a dilution of 1 in 20 million, *Pasturella muriseptica* at 1 in 50 million, *Streptococcus haemolyticus* Group A at 1 in 1·8 million and an avirulent *Mycobacterium tuberculosis* at 1 in 200,000. It was not active against *Bact. coli, Shigella flexneri* or *Candida albicans* at 1 in 25,000. It was non-toxic for mice, in which it was effective against haemolytic streptococcal infection.—T.E.G.R.

COSAR, C. & KOLSKY, M. (1955). Etude chez le hamster des diarrhées cholériformes consécutives à l'administration d'antibiotiques par voie buccale. Essais de traitement par la sulfaguanidine. **[Toxic effects of oral administration to hamsters of aureomycin, tetracycline and terramycin.]**—*C. R. Soc. Biol., Paris.* **149,** 1163-1167. **2082**

Chlortetracycline and tetracycline were given *per os* at 50 mg./kg./day. 121 of the 197 hamsters given chlortetracycline died from severe diarrhoea after 3 days. *Pseudomonas pyocyanea* and *Proteus* were predominant in the intestinal flora of both groups. An increase in staphylococci was rare. Histological examination of the intestine revealed oedema,

haemorrhage of the mucosa, and necrosis. Concurrent administration of sulphaguanidine at 125–500 mg./k.g. reduced the incidence of the diarrhoea, but was more effective if administered for a further 3 days after the cessation of the antibiotic treatment. A footnote states that this also applies to terramycin.
—A. SEAMAN.

See also abstr. **1861** (isoniazid and streptomycin in Johne's disease); **1862** (sensitivity of C. pyogenes to antibiotics); **1867** (ovine mastitis); **1868-1869** (fowl coryza); **1898-1899** (V. fetus infection); **1902** (foot rot in sheep); **1916** (caprine contagious pleuro-pneumonia); **1926** (blackhead); **1927** (coccidiosis); **1932** (Theileria infection); **1959** (E.I.A.); **1972** (porcine virus pneumonia); **1982** (Newcastle disease); **2001-2002** (warble control); **2004** (mange); **2005-2006** (Psorergates control); **2007** (toxicity of insecticides to earthworms); **2015** (lungworms); **2017** (piperazine citrate); **2031** & **2034-2035** (antibiotic food supplements); **2062** ("pullet disease"); **2071** (treatment of acute lead poisoning); **2076** (cortisone and A.C.T.H. in liver necrosis); **2096** (effect of curarizing drugs on electric shock in dogs); **2127** (implantation of antibiotic pellets for growth in calves).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

MONCRIEFF, R. W. (1955). **The sorptive properties of the olfactory membrane.**—*J. Physiol.* **130,** 543-558. [Author's summary modified.] **2083**

Olfactory membranes from newly killed animals will render some kinds of odorized air odourless.

Odorized air, passed through the nasal passages of the sealed head of a newly killed sheep, emerged odourless, for a period which depended on the nature of the odorant. The implications of these findings were discussed.

FUJIOKA, F. (1955). **[On the influence of epirenamin (*i.e.* adrenalin) upon the body temperature.]**—*Sci. Rep. Azabu vet. Coll., Japan.* No. 2, pp. 79-86. [In Japanese. Abst. from author's English summary.] **2084**

Adrenaline injections in rabbits (in doses decreasing from 0·5 to 0·008 ml.) caused a drop in body temp. which subsequently rose to slightly above or slightly below the level at the start of the experiment.—T.E.G.R.

LINDNER, H. R. & FERGUSON, K. A. (1956). **Influence of the adrenal cortex on wool growth and its relation to 'break' and 'tenderness' of the fleece.**—*Nature, Lond.* **177,** 188-189. **2085**

Field observations link the occurrence of "break" and "tenderness" of the fleece with disease, advanced pregnancy or environmental stresses which may be expected to stimulate secretion of adrenocorticotrophic hormone. Experimental treatment with this hormone and with cortical steroids was shown to reproduce the condition by injection, or by the local application of a hydrocortisone. Some sheep proved refractory after the initial reaction. Fibre thickness was reduced and histological sections revealed involution of many of the follicles. The number of circulating eosinophiles was decreased in varying degree.
—W. E. PARISH.

BORN, G. V. R., DAWES, G. S. & MOTT, J. C. (1955). **The viability of premature lambs.**—*J. Physiol.* **130,** 191-212. **2086**

It was found that lambs of less than 105–110 days' gestation delivered by caesarian section were unable to ventilate their lungs adequately. Blood pressure in lambs of this age did not fall materially as a result of ventilation of the lungs, indicating inadequacy of the pulmonary circulation. Distensibility of air spaces was shown to increase greatly during the latter weeks of pregnancy. The effect of constriction of the ductus arteriosus and the various physiological factors determining viability were discussed.
—W. S. MARSHALL.

JOHNSTON, P. M. & COMAR, C. L. (1955). **Distribution and contribution of calcium from the albumen, yolk and shell to the developing chick embryo.**—*Amer. J. Physiol.* **183,** 365-370. [Authors' summary modified.] **2087**

Specific activity values indicated that up to about the 10th day of incubation calcium was mainly derived from the yolk. Thereafter the shell contributed calcium. In general, the movement of calcium among the egg components was correlated with accepted morphological and physiological concepts.

CABANNES, R. & SERAIN, C. (1955). Hétérogénéité de l'hémoglobine des bovidés. Identification électrophorétique de deux hémoglobines bovines. **[Electrophoretic identification of two types of haemoglobin in cattle.]**—*C. R. Soc. Biol., Paris.* **149,** 7-10. **2088**

Two haemoglobin fractions were demonstrated in the blood of cattle by paper electrophoresis. One was the normal pigment and the other was an abnormal haemoglobin (apparently to be found only in the blood of certain subjects) the presence of which could not be explained.—T.E.G.R.

ALEXANDER, F. & ASH, R. W. (1955). **The effect of emotion and hormones on the concentration of glucose and eosinophils in horse blood.**—*J. Physiol.* **130,** 703-710. [Abst. from authors' summary.] **2089**

Eosinopenia was not produced in ponies by handling and repeated venepuncture, nor by adrenaline in doses sufficient to produce hyperglycaemia, but was produced by adrenocorticotrophic hormone. Insulin produced hypoglycaemia and eosinopenia with only occasional signs of distress. Eosinopenia was due to the hypoglycaemia. Histamine in doses causing clin. symptoms produced eosinopenia and hyperglycaemia.

SCHAMBYE, P. (1955). **Experimental estimation of the portal vein blood flow in sheep. II. Chronic experiments in cannulated sheep applying infusion and injection methods.**]—*Nord. VetMed.* **7,** 1001-1016. [In English. German and Danish summaries.] **2090**

S. described in Part I [*V.B.* **26,** 1797] a method for estimating portal flow in sheep. Acute conditions decreased the circulatory rate and low results were obtained. The technique has now been used successfully on surviving sheep. Results obtained by infusion compared well with those obtained by injection. Observations could be made on cardiac output, blood volume, portal flow, and circulation time between the portal vein and the carotid artery. The portal flow was 37 ml./min./kg. body wt. —JOHN SEAMER.

BIANCA, W. (1955). **The effect of repeated short term exposures to high environmental temperatures on the volume and hydration of the blood of the calf.**—*J. Physiol.* **130,** p.17P. of Proceedings. [Only abst. given. Abst. from abst.] **2091**

Three calves were exposed to a temp. of 45°C., with an absolute humidity of 17 mg./l., for a maximum of 5 hours daily for 3 weeks. There was no significant difference in the blood, cell or plasma volumes which were tested at 5-day intervals during the experimental period and for 2 weeks before and after the experiment.—A. SEAMAN.

PHILLIPSON, A. T. (1955). **Sodium transport and its role in the ruminant digestion.**—*Vet. Rec.* **67,** 1048-1051. Discussion: pp. 1051-1053. [Author's summary copied *verbatim.*] **2092**

The rumen epithelium is a selective membrane. Sodium is actively absorbed but potassium—as far as is known—is passively absorbed and in less quantity than sodium. A potential difference of the order of 25 to 35 mV. exists between the rumen and the blood, the blood being positive to the rumen. This means that chloride can pass to the blood from the rumen against a concentration gradient. The significance of this potential in relation to the behaviour of other charged ions is discussed.

DZIUK, H. E. & SELLERS, A. F. (1955). **Physiological studies of the vagal nerve supply to the bovine stomach. II. Studies on the eructation mechanism in adult cattle.**—*Amer. J. vet. Res.* **16,** 499-504. **2093**

In a study of the movements of the rumen and reticulum and of the phenomenon of eructation, intrathoracic electrodes were applied to the dorsal trunk of the vagus in each of 3 cows with rumen fistula. A four-channel electronic manometer was used for recording pressure changes in the cardia, the reticulum and the anterior and posterior dorsal rumen sacs. Moderate stimuli of the vagus caused an increase in the rate of eructation and of contraction of the rumen. Stronger stimuli produced spasmodic contraction of the rumen, reticulum and cardia. When the cardia was submerged 6–8 in. by infusion of large quantities of water into the rumen and by raising the hind quarters, two of the cows were able to eructate regularly; the rate of eructation was increased by stimulation of the vagus.—T.E.G.R.

IGGO, A. (1956). **Central nervous control of gastric movements in sheep and goats.**—*J. Physiol.* **131,** 248-256. [Author's summary modified.] **2094**

Reticulo-ruminal movements, which ceased when intact sheep or goats were anaesthetized, could be elicited by gastric distension in a lightly anaesthetized goat. In decerebrate sheep and goats they appeared spontaneously or were elicited by gastric distension or by faradic stimulation of the central end of the cut vagus. Sustained gastric distension elicited reticular movements and excited receptors in the gastric wall. Increasing the distension raised the rate of impulses in the centripetal fibres and of gastric contractions. The centripetal fibres from the gastric receptors and the vagal afferent fibres had conduction velocities of less than 13 metres per sec. Movements in decerebrate sheep were inhibited by blocking the cervical vagi. The gastric efferent fibres had conduction velocities of 1–16 m. per sec.,

and when they were stimulated repetitively smooth incoordinated gastric contractions were recorded.

FINDLAY, J. D. (1955). **The respiratory behaviour of calves exposed to increasing thermal stress.**—*J. Physiol.* **130,** No. 2. pp. 16P-17P. of Proceedings. [Only abst. given. Abst. from abst.] **2095**

There were two types of response in the 8 animals tested. Some calves exposed to temperatures of up to 40°C. showed a constant ventilation rate at any given temp. and an increase of 8 l./min. over the last 10°C. of the range. The increase in respiration frequency was linear. These findings were correlated with a stable rectal temp. In those animals whose rectal temperatures rose to 41·5°C. the respiration frequency reached high values at 30°C., with little further rise over the next 10°C. The ventilation increased during exposure to a constant temp. and increased by 26 l./min. over the range 30° to 40°C.

—A. SEAMAN.

BENELLI, C., FAURE, J. & ROUGIER, G. (1955). Influence d'un curarisant de synthèse sur les modifications hémodynamiques dues à l'électrochoc chez le chien. **[Effect of a curarizing drug on electric shock in the dog.]**—*C. R. Soc. Biol., Paris.* **149,** 1269-1271. **2096**

The authors have attempted to elucidate the mechanisms normally responsible for circulatory changes during electro-shock in the dog. These may be central or peripheral in origin. Tri-(β-diethylaminoethoxy)-benzene triethiodide ("flaxedil") was given to 12 dogs under chloralose and the effects of electro-shock on blood pressure and respiration were studied. Thus local effects of muscular contraction were eliminated. The principal findings were (1) large initial fall of blood pressure, without any bradycardia, and (2) a subsequent hypertension of 4–13 cm. mercury. The dogs were normal in 12 min. In the absence of a curarizing agent, electro-shock produces initially a marked vagal effect, which is followed by variable sympathetic or parasympathetic tone. The presence of "flaxedil" produces more constant results and the drug appears to have strong vagolytic activity.

—PHYLLIS G. CROFT.

BINET, L., STRUMZA, M. V., CORABOEUF, E. & ZACOUTO, F. (1955). Effets respiratoires des courtes stimulations électriques transthoraciques chez le chien. **[Effect on respiration of short transthoracic electrical stimulation in the dog.**—*C. R. Soc. Biol., Paris.* **149,** 1100-1103. **2097**

The effect of different parameters of transthoracic electrical stimulation on the respiratory action of dogs was studied: 16 dogs were treated with chloralose, and the arterial pressure, volume of tidal air and intratracheal pressure observed. Electrical stimulation comprised monophasic pulses of 2–3 millisec.; the voltage varied from 1–400 V. and the frequency from 20–400 pulses/min. Maximal respiratory movements were produced by stimulation at a voltage of 50 V. and a pulse frequency of 200/min.

—PHYLLIS G. CROFT.

HAFEZ, E. S. E., BADRELDIN, A. L. & SHAFEI, M. M. (1955). **Skin structure of Egyptian buffaloes and cattle with particular reference to sweat glands.**—*J. agric. Sci.* **46,** 19-30. **2098**

The skin of buffaloes is thicker than that of cattle; the number of hair follicles and of sweat glands per sq. cm. of skin is 394 as compared with 2,633 in cattle. There are twice as many sebaceous glands in buffaloes. Species differences in the distribution of blood vessels and capillaries and age differences in skin histology are described.—T.E.G.R.

MILNE, A. H. (1955). **The humps of East African cattle.**—*Emp. J. exp. Agric.* **23,** 234-239. **2099**

In this anatomical study the humps of the East African shorthorned zebu and of the Ankole (Sanga type) cattle are compared. In the former the hump is a musculo-fatty structure situated in the thoracic region; its main function is the storage of fat. In the latter, it is situated in the cervico-thoracic region and is mostly muscular; its function is associated with locomotion. Diagrams and photographs illustrate the article.—T.E.G.R.

MIZERES, N. J. (1955). **The anatomy of the autonomic nervous system in the dog.**—*Amer. J. Anat.* **96,** 285-318. **2100**

Ten adult dogs—6 males and 4 females—were dissected in the course of this study of the autonomic nervous system in the dog, excluding the cephalic region. In the cervical region the cranial cervical ganglion and the vago-sympathetic trunk are described. In the thoracic region the nervous system includes the caudal cervical and stellate ganglia and the

associated cardiac nerves and plexuses; no cardiac plexuses comparable to the human exist here. The abdominal region comprises the vagus, the abdominal plexuses and collateral ganglia, the single thoracic splanchnic nerve (which emerges from the sympathetic trunk at the 13th thoracic level and ends in a splanchnic ganglion), and the lumbar sympathetic trunk and its branches. In the pelvic region the hypogastric and pelvic nerves from the pelvic plexus and the sacral parasympathetic trunk and its branches and anastomoses are described. No "ganglion impar" could be found.—T.E.G.R.

See also abstr. **1939** (ruminal protozoa); **2150** (book, cell physiology); **2151** (book, medulla oblongata).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

MUSTAKALLIO, K. K., AHOS, E. O. & AUTIO, E. O. (1955). **Tetrazolium-reduction test for milk.**—*Science.* **122,** 971-972. **2101**

In the dark, when tetrazolium salts were in a concentration of 10^{-4} in milk samples with a bacterial content of 4×10^6 per ml. or less, their reduction to their coloured formazans became visible earlier than the reduction of methylene blue, and they could be employed at room temperature if the milk had a high bacterial content. Light accelerated their reduction more than that of methylene blue and part of this appeared to be non-enzymic. Thirty-eight per cent. formaldehyde in a concentration of 5×10^{-3}, whilst accelerating the reduction of methylene blue, inhibited the formation of formazans, but oxygen only slightly delayed it. The stability of formazans against oxygen gives the tetrazolium salts a great advantage over methylene blue.

—A. ACKROYD.

MINDER, W. (1955). Nachweis von radioaktiven Lebensmitteln. **[Contamination of food by radioactive substances.]**—*Wien. tierärztl Mschr.* **42,** 652-658. **2102**

M. recommended the following precautionary measures: no nuclear tests in food-producing or inhabited areas; no pollution of air or water by radio-active waste products; supervision of areas liable to contamination; control of food from suspected areas by means of film, which is packed with the food before export; and examination of imported food with radiation detectors.—M.G.G.

HORSFALL, F., JR. (1956). **Rodenticidal effect on pine mice of endrin used as a ground spray.**—*Science.* **123,** 61. **2103**

Experimental plots, each of 1·2 acres, in heavily infested apple orchards were sprayed with 2·5 or 3·25 lb. of endrin. A sharp decline in mouse activity occurred within 6 days under damp conditions, and within 3–6 weeks under dry conditions.—M.G.G.

ANON. (1955). **The report of the Committee on Veterinary Education.**—*N. Z. vet. J.* **3,** 25-32. **2104**

The establishment of a veterinary school in New Zealand is recommended on the grounds that :— (a) the number of veterinarians recruited under the present system (of offering bursaries for training overseas and of importing qualified men) falls short of requirements; (b) interest will be stimulated and a better type of student will be attracted; (c) it will be possible to study in their natural environment problems peculiar to the Dominion; (d) an improvement in the health and productivity of stock will be brought about by the increase in the number of veterinarians. An estimate of expenditure is given and the views of the N.Z. Veterinary Association, the Principal of the Canterbury Agricultural College, and the President of the Royal College of Veterinary Surgeons, are expressed in appendices. A minority report is also included.—T.E.G.R.

See also abstr. **2010-2011** (Cysticercus bovis in meat, and sewage disposal); **2130** ("shell-pasteurization" of eggs); **2131** (germicidal dips for eggs); **2139** (report, Royal Veterinary College).

REPRODUCTION AND REPRODUCTIVE DISORDERS

SHALASH, M. R. (1956). **Some applied aspects in A.I. of buffaloes. A rapid method of standardisation of the density of buffalo semen.**—*Vet. Rec.* **68,** 8-11. [Author's summary modified.] **2105**

The rapid method of estimating the density of a semen sample by means of Brown's opacity tubes can be applied to buffalo semen. It is sufficiently accurate for use in artificial insemination centres. There is a simple linear relation between opacity and density.

CRAGLE, R. G., MYERS, R. M., WAUGH, R. K., HUNTER, J. S. & ANDERSON, R. L. (1955). **The effects of various levels of sodium citrate, and equilibration time on survival of bovine spermatozoa after storage at −79°C.**—*J. Dairy Sci.* **38,** 508-514. **2106**

Fifteen different combinations, varying in the proportions of sodium citrate and glycerol, and the length of equilibration time allowed, were tried; percentage spermatozoan survival was based on 2 ejaculates from each of the 4 bulls used. These varied quite consistently throughout all treatments in their "freezability". The results, subjected to elaborate statistical analysis, were taken to indicate estimated optima of sodium citrate 2·9%, glycerol 7·6%, equilibration time 14·9 hours. —F. L. M. DAWSON.

ERB, R. E., MIKOTA, L. E., FLERCHINGER, F. H. & EHLERS, M. H. (1955). **Influence of antibiotics on fertility of bull semen diluted with milk.**—*J. Anim. Sci.* **14,** 731-738. **2107**

Streptomycin alone, 1,000 μg./ml. diluted semen, was the most satisfactory. Antibiotic treatment reduced the differences between bulls, and almost eliminated "non-return decline", the index to returns between 29 and 120 days.—F. L. M. DAWSON.

BLOM, E. (1955). **Problems related to the hygienic quality of bull semen as it is used in A.I.**—*Zootec. e Vet.* **10,** 427-430. [In English.] **2108**

B. hopes it will become possible to abandon the use of antibiotics in semen. The prophylactic measures recommended are in the main those already carried out as a routine in Great Britain, with, in addition, the Adler test-mating technique. Much space is devoted to advocacy of the use of B.'s bromthymolblue catalase test, as an index of bacterial contamination of semen, (when the catalase content rises).—F. L. M. DAWSON.

VANDEPLASSCHE, M. (1955). Ejakulationsstörungen beim Hengst. **[Troubles of ejaculation in stallions.]**—*Fortpflanzung.* **5,** 134-137. [English summary.] **2109**

Inability to ejaculate was observed in 19 stallions of the Belgian draught breed, only 6 of which were affected during their first breeding season. Erection was normal, though in 6 cases rather slow to develop. In 4 cases the penis was only partially inserted into the vagina. No anatomical changes were observed. Except with the 4 cases of incomplete intromission, normal function was restored after a change of management and environment. Pharmaceutical and hormonal treatments were of little value.—HUGH BOYD.

BONADONNA, T., PECCHIAI, L. & CHIESA, F. (1955). Interessanti alterazioni nella spermiogenesi e lesioni cliniche ed istologiche riscontrate in tre tori (*Bos taurus*). **[Alteration in spermogenesis and clinical and histological lesions found in three bulls.]**—*Zootec. e Vet.* **10,** 251-266. [English summary.] **2110**

Reduced fertility in 3 apparently healthy stud bulls was investigated. Repeated tests for TB. and brucellosis had given negative results. The animals were slaughtered and on P.M. examination the testicles of one were enlarged, each containing about 100 ml. of a yellowish, blood-stained liquid. There were inflammatory changes in the testes of the second and those of the third were affected with TB. Arrested development and desquamation of the seminal epithelium and almost complete absence of spermatozoa were observed in all 3 animals. The cause of infertility could not be ascertained in the case of the first two bulls.—T.E.G.R.

CARBONERO BRAVO, D. (1955). La inseminación artificial en la karakulización de algunas razas ovinas españolas. **[Artificial insemination from Karakul rams in the grading-up of Spanish breeds of sheep.]**—*Rev. Patron. Biol. anim.* **1,** 199-246. **2111**

Extensive cross breeding trials were carried out over a period of 11 years. Artificial insemination was practised, Karakul rams and Mancha, Churro and Lacho ewes being used. The methods of collection, dilution and preservation of semen, and of insemination are described. Churro ewes gave the best results, producing bright (though, perhaps somewhat light) skins with a good Astrakhan type of wool.—T.E.G.R.

DUTT, R. H. & BUSH, L. F. (1955). **The effect of low environmental temperature on initiation of the breeding season and fertility in sheep.**—*J. Anim. Sci.* **14,** 885-896. **2112**

Observations were made on 20 Hampshire cross ewes and 3 Southdown rams ("treated" group) housed in a room at 45° to 48°F. from the 26th May, and a similar control group kept at normal atmospheric temperature under comparable conditions of light and diet. The normal mating season, as evidenced by the controls, began on the 13th August: the first treated ewe came into oestrus on the 31st May. Half the ewes in each group were

mated to treated and half to control rams, those returning to service being repeat mated to the same male until conception occurred. The number of services required per conception in each sub-group was (average) :— treated ewe × control ram, 5·3; treated ewe × treated ram, 1·9; control ewe × treated ram, 2·0; control ewe × control ram, 2·8. The difference in the first two sub-groups is highly significant.—C. C. Bannatyne.

Schindler, H., Weinstein, S., Moses, E. & Gabriel, I. (1955). **The effect of various diluents and storage times on the fertilizing capacity of cock semen.**—*Poult. Sci.* **34,** 1113-1117. [Authors' summary modified.] **2113**

Undiluted semen, and semen diluted with either Ringer's or Locke's solution, or with whole milk, retained full fertilizing capacity after 4 hours' storage at 10°C. Fertility was partially maintained in undiluted semen after 24 hours' storage at 10°C.; and in semen diluted with whole milk, after 24 hours at 4°C.

Aslanyan, M. M. (1955). **[Stimulative properties of rabbit semen conserved at low temperatures.]**—*Proc. Lenin. Acad. agric. Sci.* **20,** No. 4, pp. 37-42. [In Russian.] **2114**

The author claimed that the s/c inj. into rabbits at intervals of 10 days of rabbit semen which had been stored at 2° to 4° for 48 hours and then autoclaved, stimulated gain in body wt., the healing rate of wounds, and the quality and quantity of ejaculates. The stimulation was greater than that which followed the similar inj. of fresh (autoclaved ?) semen or physiological saline soln.—R.M.

King, E. S. J. (1955). **Spermatozoal invasion of the epididymis.**—*J. Path. Bact.* **70,** 459-467. [Author's summary modified.] **2115**

Spermatozoal invasion of connective tissues occurs occasionally as a sequel to mild infections of the epididymis. When connective tissue is exposed in the lumen of the tubule or once the epithelial layer has been traversed, spermatozoa readily invade the intercellular substance of the connective tissue. This is most probably related to hyaluronidase activity. Cases of injury to the vas have been followed by spermatozoal granuloma of the cord: here, the changes resemble, in some respects, those of TB. In the epididymis, however, the condition is more likely to follow changes other than those due to mechanical injury. Agglutination, lysis and phagocytosis of spermatozoa are frequently seen. The connective-tissue reaction is complicated and appears to be due to various fractions of the spermatozoa. Some of the changes, and particularly those in the tubular epithelium, are a result of antecedent infection.

Vandemark, N. L. & Hays, R. L. (1955). **Sperm transport in the perfused genital tract of the cow.**—*Amer. J. Physiol.* **183,** 510-512. [Abst. from authors' summary.] **2116**

The passage of spermatozoa was demonstrated in the excised, perfused genital tracts of 16 cows and a heifer in various phases of the oestrous cycle. Some passage occurred in tracts from oestrous cows without the addition of oxytocin to the perfusate. No evidence of passage was found in tracts from cows in the progestational phase unless oxytocin was added. The addition of oxytocin also increased the rate of passage in the follicular phase.

Mann, T., Polge, C. & Rowson, L. E. A. (1956). **Participation of seminal plasma during the passage of spermatozoa in the female reproductive tract of the pig and horse.**—*J. Endocrin.* **13,** 133-140. [Abst. from authors' summary.] **2117**

In the gilt, about 40 min. after mating, the uterine horns were filled with semen containing spermatozoa as well as fructose, ergothioneine and citric acid, but 6 hours after mating the bulk of the spermatozoa and seminal plasma had disappeared. In the mare, 50 min. after mating, spermatozoa, ergothioneine and citric acid were recovered from both uterine horns, in proportions similar to those found in fresh stallion semen.

Rowson, L. E. (1955). **The movement of radio opaque material in the bovine uterine tract.**—*Brit. vet. J.* **111,** 334-342. **2118**

Concerned about the possible effects on egg transplantation, of pitocin release *via* the cervical nerves moving ova up into the tubes at any stage of the cycle, R. used oil globules (radio-opaque) to simulate ova. Seventeen heifers were run with a vasectomized bull. At known stages of the cycle, 2 ml. oil was 'inseminated' and the animal slaughtered after an interval. During oestrus it was found that globules took 30 min. to enter the tubes and 40 min. to reach the pavilion of the oviduct; this contrasts markedly with Vandemark's results, using spermatozoa. The injection of pitocin, however, caused globules to reach in 2 min. the distance normally taking 45. Results from one heifer normally inseminated

as well, indicated that bull semen does not contain uterine contractants as does human semen. At mid-cycle, no material ever entered the tubes, despite pitocin; This was thought to be a corpus luteum effect, as in heifers slaughtered 1–2 days *post oestrum* ascent did take place. Attempts to follow up expression of the corpus luteum in two animals failed.

—F. L. M. Dawson.

Schaetz, F. (1955). Beitrag zur Ätiologie der Zyklusstörungen beim Rind mit besonderer Berücksichtigung der grosszystischen Entartung (Nymphomanie). **[Aetiology of disturbances of the oestrous cycle in the cow, with special reference to cystic ovaries.]** —*Fortpflanzung*. **5,** 147-152. [English summary.] **2119**

S. emphasized the importance of Selye's "stress" theory in connexion with the aetiology of infertility. He discussed this in considerable detail in relation to cystic ovarian degeneration.—Hugh Boyd.

Teige, J. (1955). Uterus uten karunkler med fuldbåren kalv. **[Absence of cotyledons in the uterus of a cow with a fully-developed calf.]**—*Nord. VetMed.* **7,** 481-486. [In Danish. English, French and German summaries.] **2120**

The condition described in the title was observed in a 2-year-old Danish dairy cow. The animal's general health was unaffected. There was a discharge from the vagina. The calf was dead.—Hugh Boyd.

Allison, R. M. (1955). **The merits of some English and foreign male toads and frogs used for the diagnosis of pregnancy and measures to overcome their disadvantages. Parts I & II.**—*Lab. Pract.* **4,** 229-234 & 277-282. **2121**

This work is based on some 8,000 pregnancy tests. The common toad, which is often unobtainable, is sensitive to a minimum dose of 8 i.u. luteinizing hormone after 15–20 min. The edible frog, ideal in other respects, is wild, and needs two people to handle it, whilst two frogs are needed for each test. The Green toad and the European tree frog are responsive to as little as 0·05 ml. urine. The West African toad is the easiest to obtain in winter. The Egyptian toad is the only variety in which the female can be used.

—F. L. M. Dawson.

Amoroso, E. C. (1955). **Hormone control of the oestrous cycle.**—*Vet. Rec.* **67,** 1072-1084. Discussion: pp. 1085-1086. **2122**

The author considers that the length of a cow heat period is curtailed through the action of oestrogens inducing a refractory period in the brain. Secretion of follicle stimulating and of luteinizing hormones is believed to be at a rate modulated by a feed-back mechanism, in which the determining factor is the level of secretion of the ovarian hormones. Literature on hormonal behaviour of the corpus luteum is reviewed, and evidence briefly discussed concerning the possible intervention of a nervous reflex factor in bovine ovulation. In discussion on the paper, this latter aspect was applied hypothetically to account for much of the infertility met with in pedigree dog and cat breeding.

—F. L. M. Dawson.

Schaetz, F. (1955). Kritik der Therapie mit Östrogenen und Gonadotropinen in der tierärztlichen Praxis. **[Criticism of the use of oestrogens and gonadotrophins in veterinary practice.]**—*Schweiz. Arch. Tierheilk.* **97,** 521-534. [English, French and Italian summaries.] **2123**

The treatment of infertility due to hormone deficiency, by hormone substitution therapy is often undesirable because the hormone deficiency is rarely primary, being in most cases a defensive reaction against the further stress of pregnancy in an already stressed animal. Treatment should be based on the underlying cause of the hormonal disturbance.—Hugh Boyd.

Brocq, P. & Roth, P. C. J. (1955). Influence d'un régime alcalin sur les effets de l'implantation de comprimés de dihydrofolliculine chez la lapine. **[Influence of an alkaline diet on the effects of stilboestrol implants in the doe rabbit.]**—*C. R. Soc. Biol., Paris.* **149,** 942-943. **2124**

Oestradiol benzoate was implanted s/c on 5 virgin doe rabbits (2 on a normal diet and 3 given 12·5 mg. $NaHCO_3$/litre of drinking water). A sixth was used as control. All were killed after 4 months. The weight gain in the control was much higher than in the test animals. In these, too, the vagina was more or less haemorrhagic, with hypertrophy and thickening and, in four of them, a tumour was present astride and adhering to the uterine horns. In the fifth there was a tumour on each horn. All the uterine horns were normal. The histological changes are described.

—T.E.G.R.

Dun, R. B. (1956). **Temporary infertility of rams associated with flooding.**—*Aust vet. J.* **32,** 1-3. [Author's summary modified.] **2125**

Temporary infertility in Merino rams was associated with a mosquito plague, heavy rainfall, flooding and warm humid conditions. Affected rams had more body wrinkle and more pendulous scrota than unaffected. Rams which showed no semen degeneration gave an initial high percentage of returns when used at artificial insemination. The findings were compatible with a diagnosis of heat degeneration.

Lucas, D. R., Attfield, M. & Davey, J. B. (1955). **Retinal dystrophy in the rat.** — *J. Path. Bact.* **70,** 469-474. [Authors' summary modified.] **2126**

The late post-natal development of the retina in the normal rat is described. The early stages of a recessively inherited retinal dystrophy in the rat have been re-examined and found to start 15 or 16 days after birth and before differentiation of the retina is completed 5 or 6 weeks after birth. The existence of parallel conditions in the mouse, the Irish setter and man is discussed.

See also absts. **1854** (pregnancy and tuberculin test); **1877** (brucellosis); **1884** (leptospiral abortion in sows); **1896-1900** (V. fetus infection); **1918-1922** (trichomoniasis); **1993** (presence of rickettsia in aborted foetuses of sows with atrophic rhinitis); **1999** (haemolytic disease in mule foals); **2000** (inheritance of blood groups in rabbits); **2026-2028** hatchability of eggs and lymphomatosis); **2045** (pantothenic acid and reproductive performance in sows); **2070** (prenatal transfer of fluorides); **2086** (viability of premature lambs); **2087** (calcium metabolism in chick embryos); **2132** (effect of irradiation on hatchability of eggs); **2144** (report, New Zealand).

ZOOTECHNY

Robertstad, G. W., Sullivan, R., Tucker, J. O. & Glenn, M. W. (1955). **Subcutaneous implantation of antibiotics in pellet form to stimulate the growth of range lambs and range calves.**—*Vet. Med.* **50,** 142-143. **2127**

In 58 calves implanted at birth with 4,000 units of bacitracin, the average weight gain over controls at 6 months was 3·5%. In 374 lambs which received bacitracin alone, bacitracin with neomycin, or bacitracin with penicillin, there were no gains over controls.

—M.G.G.

Roy, J. H. B., Shillam, K. W. G. & Palmer, J. (1955). **The outdoor rearing of calves on grass with special reference to growth rate and grazing behaviour.**—*J. Dairy Res.* **22,** 252-269. **2128**

Spring-born bull calves from local herds were reared out of doors on permanent pasture or on leys from birth. Colostrum, 45 gal. of whole milk for 8 weeks and then grass comprised the diet up to 6 months. A little dried grass was fed to one group. Live weight at 6 months compared favourably with that obtained with normal rearing methods. Leys were more favourable to weight gains than permanent grass. Worm infestation is discussed and details of behaviour of one group examined.—W. S. Marshall.

Sainsbury, D. W. B. & Scorgie, N. J. (1955). **Studies on the climate of pig houses. I. The ventilation of piggeries.**—*Brit. vet. J.* **111,** 324-333. **2129**

Of 42 piggeries investigated, only 4 were satisfactorily ventilated. Ventilators, when present, were usually non-adjustable, without baffles, and badly situated. As opposed to the open ridge ventilators commonly used in Great Britain, the authors advocated a controllable, wooden, outlet flue, with hopper windows and baffled, adjustable, inlet ventilators placed near the eaves.—M.G.G.

Knowles, N. R. (1955). **The effect of 'shell-pasteurization' in reducing bacterial rots in farm-washed eggs.** In Research and Experimental Record of the Ministry of Agriculture Northern Ireland **1952-53. 3,** pp. 82-89. [Belfast: H.M. Stat. Off. 7s. 6d.] [Author's summary modified.] **2130**

The incidence of bacterial rotting in farm-washed eggs from 5 farms is tabulated. Two farms produced eggs with a high incidence of rotting over a 5-week period. The remaining 3 produced eggs of reasonable keeping quality. Farm inspections failed to disclose the reason for the differences in keeping quality. The effect of "shell-pasteurization" on farm-washed eggs held in hot water at different temperatures for 3 min. is described. A temp. of 145°F. ± 0·5°F. reduced bacterial rotting in good quality eggs to minimal proportions. It is concluded that the heat-treatment method is efficient in reducing rot in farm-washed eggs where the overall quality is reasonably good, but will not guarantee success in eggs of low quality.

Gordon, R. F., Harry, E. G. & Tucker, J. F. (1956). **The use of germicidal dips in the control of bacterial contamination of the shells of hatching eggs.**—*Vet. Rec.* **68,** 33-39. [Authors' summary modified.] **2131**

Sodium pentachlorophenate ("santobrite")

and paraoctylphenoxyethyl benzyl diethyl ammonium chloride ("octaphen"), at concentrations of 0·5% and 0·8% respectively, sterilized the shells of 30 successive batches of eggs artificially contaminated with certain *Salmonella* and faecal type organisms. The temp. of the solution was kept at 25°C., and the eggs were immersed for 15 min. An alkyl trimethylammonium halide (plus detergent) ("deogen"), and a 10% cetyltrimethyl ammonium bromide ("cetavlon"), were effective for 15 and 11 batches respectively. Phenyl mercury ethylenediamine tetra acetate ("P.M. versene") and phenyl mercuric-dinaphthylmethane disulphonate ("penotrane") were effective for only 3 batches, and tetra alkyl ammonium bromide (plus detergent) ("novamine") for only one. None of the above compounds had any significant detrimental effect on flavour or hatchability. Potassium 8 - hydroxyquinoline sulphate affected flavour and stained the shells light yellow, and 50% alkyldimethyl-benzylammonium chloride ("germ-i-tol") affected both flavour and hatchability.

LESHER, S., COTTRAL, G. E. & WATERS, N. F. (1955). **The effects of low dosage X-ray irradiation on reproduction in chickens.**—*Poult. Sci.* **34,** 1089-1092. [Authors' summary modified.] **2132**

There was no significant difference in total egg production between irradiated and control fowls either within or between age groups. Neither fertility nor hatchability of the eggs was affected. Each fowl received 50–300r.

ROBBLEE, A. R. & CLANDININ, D. R. (1955). **The use of 2-amino, 5-nitrothiazole for the induction of moult in yearling hens.**—*Poult. Sci.* **34,** 991-995. [Abst. from authors' summary and conclusions.] **2133**

The addition of aminonitrothiazole to a breeding ration induced moult in yearling hens. No deaths occurred among fowls treated at 0·1% for 26 days. The average time for resumption of egg production after treatment was 23·9 days. [See also *V.B.* **25,** 4002.]

GOODING, C. D. (1955). **Trapping yards for kangaroos.**—*J. Dep. Agric. W. Aust.* **4,** 688-694. **2134**

Trapping yards are dependent for their success on complete enclosure of water supplies. A large expenditure of labour and equipment is therefore necessary, and eradication by this method is lower and more expensive than by poisoning of water supplies.

—R. I. SOMMERVILLE.

TECHNIQUE AND APPARATUS

VELU, P. (1955). Technique simple de prélèvement de sang chez le lapin. **[Simple technique for collecting blood from rabbits.]**—*Ann. Inst. Pasteur.* **89,** 585-587. **2135**

A sleeve connected to a tube is placed over the rabbit's ear so as to form an airtight junction at the base. The ear is cut and the tube filled by suction exerted *via* a side arm.

—D. POYNTER.

DENINGTON, E. M. & LUCAS, A. M. (1955). **Blood technics for chickens.**—*Poult. Sci.* **34,** 360-368. [Authors' summary modified.] **2136**

A unit tray for handling 15 sets of tubes for blood samples is described. A modification of the alkaline-acid haemoglobin technique is suggested, by which the turbidity of avian blood is eliminated. The value of the Van Allen haematocrit tube for testing large numbers of samples from chickens is discussed. The difference between composition of buffy coat in avian blood and in mammalian blood is pointed out. A pipette shaker suitable for handling gently the large cells of avian blood is mentioned. An indirect method for making thrombocyte counts is described.

MISCELLANEOUS

LEA, D. E. (1955). **Actions of radiations on living cells.** pp. xiv+416. Cambridge: At the University Press. 2nd Edit. 30s. **2137**

The physical properties, dosimetry and chemical effects of ionizing radiations and the target theory are described and explained in the first three chapters. The effects of radiations on viruses, and on the genes and chromosomes of higher cells are discussed in the subsequent chapters each of which has an introductory section consisting of a brief description of the organisms concerned; this section is more detailed in the case of the chapter on the genetical effects of radiation. The lethal effects of radiation on cells are discussed in the concluding chapter. Appendix I comprises a number of supplementary calculations while a second appendix consists of

textual revisions and additions. There are two bibliographies, an author index and a subject index.—T.E.G.R.

ANDERSON, A. C. (1955). **Debarking in a kennel: technic and results.**—*Vet. Med.* **50,** 409-411. **2138**

The anatomy of the vocal cords and the operation for their removal (under general ether anaesthesia) are described. The operation, which was performed on 400 dogs, is claimed to "reduce the voice to a low and husky utterance".—T.E.G.R.

REPORTS

GREAT BRITAIN. (1955). **Royal Veterinary College Annual Report 1st October, 1953 to 30th September, 1954.** pp. 38. London: The Royal Veterinary College. **2139**

There were 347 students registered at the opening of the 1953–54 session. Seven candidates obtained the degree of B.Sc. (Veterinary Science) and 309 students passed examinations of the R.C.V.S., seventeen of these passed with Honours marks, and 65 qualified for registration as M.R.C.V.S.

A brief review is given of the activities of each Department including the research work concluded and in progress during the year. There is a list of the published books and scientific papers produced by members of the staff.—J. A. GRIFFITHS.

GREAT BRITAIN. (1955). **Committee for Colonial Agricultural, Animal Health and Forestry Research. Ninth Annual Report (1953-1954).** London: Agricultural Research Council. 53 pp. **2140**

The committee held four meetings during the year. In the Gold Coast work was continued on the uses and possibilities of lapinized virus for RINDERPEST. Immunity was proved for three and a half years. A rickettsial disease in imported goats was also investigated.

In Kenya, further use was made of avianized BOVINE CONTAGIOUS PLEURO-PNEUMONIA vaccine. Experience during the year has shown the value of this in the enzootic areas of Kenya and Uganda, but reports from Nigeria, the Gambia and the Sudan have been less satisfactory. The formolized spleen adjuvant vaccine for RINDERPEST developed by American workers has been issued in large quantites.

In Malaya, the Veterinary Research Institute was opened and work to date was mainly directed to the production of vaccines.

Studies at the Veterinary Laboratory at Mpwapwa in Tanganyika are reported on and so also is work at the Animal Health Centre, Entebbe (Uganda), on variations in the total calcium and inorganic phosphorus in the blood of zebu cattle.—D. S. RABAGLIATI.

GREAT BRITAIN. (1955). **Committee for Colonial Agricultural, Animal Health and Forestry Research, tenth Annual Report (1954-1955).** London: Agricultural Research Council. 189 pp. **2141**

Veterinary research was chiefly concerned with methods of control of well known diseases, particularly the production of safe and effective vaccines for protection against RINDERPEST. The East African Research Organisation took over the manufacture of vaccines and sera for the East African and Sudan regions during the year and the research laboratories at Vom (Nigeria) continued to supply the West African region.

Animal nutritional problems are generally specific to each locality and require research on the spot.

FLUOROSIS in cattle in parts of Tanganyika calls for the study of water supplies, and RABIES control for investigations into vaccine production in Trinidad, Nyasaland and Nigeria.

Research work is reported on from Cyprus, the Gambia, the Gold Coast, Jamaica, Kenya, Malaya, Nigeria, Northern Rhodesia, Nyasaland, Sierra Leone, Tanganyika and Uganda.—D. S. RABAGLIATI.

GREAT BRITAIN. (1955). **Colonial Medical Research Committee tenth Annual Report (1954-1955).** London: Medical Research Council 41 pp. **2142**

The terms of reference of the Committee are to advise the Secretary of State for the Colonies and the Medical Research Council on all matters of medical research, in and for the benefit of the colonies, and to serve as a clearing house and focus of information.

The report chiefly concerns purely medical matters, but some work was carried out on animal-borne diseases in Malaya, such as surveys of human serum for antibodies to arthropod-borne viruses, and the testing of

1,000 blood samples from abattoirs throughout the country. A positive complement-fixation test was obtained for Q FEVER in the case of 26 samples from oxen, water buffaloes, goats, a pig and a dog and also from one abattoir worker.

The name "SQUIRREL JAUNDICE" has been given temporarily to a condition under investigation in which the serum of squirrels is deeply jaundiced. Of specimens collected from a wide area all had some yellowness of serum, but only a proportion had malaria parasites in blood films.

LEPTOSPIROSIS was the commonest cause of febrile disease in military personnel.

—D. S. RABAGLIATI.

AUSTRALIA, (1955). **The stock inspector. Institute of inspectors of stock of New South Wales, Year Book, 1955.** pp. 88. Sydney: The Institute. 2s. 6d. **2143**

BOVINE MALIGNANT CATARRH has been diagnosed in N.S.W.

In the control of FLY STRIKE in sheep, dieldrin appeared to be somewhat superior to aldrin. Concentrations of 0·025–0·05% applied by "jetting" gave 9 to 10 weeks' complete protection and further effects in reducing strike rate for the next 4–5 weeks. NEOPLASMS of an epithelial type have been seen associated with dermatitis in ewes which have been treated with the "radical" Mules operation for the prevention of BLOWFLY STRIKE.

Mortality was recorded in sheep fed large quantities of pelleted concentrates composed chiefly of wheat and its by-products. Affected sheep showed loss of appetite and diarrhoea. The precise cause of the deaths was not established, but it was considered that there may have been excessive formation of lactic acid in the rumen. HYPOCUPROSIS in a Merino flock was manifested by unthriftiness accompanied by gradual deterioration of wool quality. At lambing many ewes required assistance owing to poor muscle tone. Milk supply was poor and many lambs had to be artificially fed. Drenching with copper sulphate and topdressing of pastures with 5 lb. copper sulphate per acre resulted in dramatic improvements in thriftiness and wool quality, and the next lambing was satisfactory. There was only one case of clinical ATAXIA in lambs.

Diseases associated with droughts are HELMINTHIASIS when sheep are overcrowded in feeding places; FASCIOLIASIS, from grazing in swampy areas in search of green food; PREGNANCY TOXAEMIA, when the supplementary food ration is adequate; and PLANT POISONING from eating weeds normally rejected. The necessity for adequate trough space or proper feeding techniques is stressed. Vitamin A supplements are not necessary unless the drought lasts at least five months and no green food of any kind is available.

"TREMBLING" was seen in a litter of pigs within two days of birth and disappeared at about four weeks.

MERCURIAL POISONING was seen in pigs fed on surplus seed wheat which had been dusted with an organic mercurial compound. Affected pigs showed loss of appetite, pale mucous membranes with petechiae, haematuria, blood flecks in the faeces and red spots on the skin of the abdomen, axilla and thighs. There were numerous haemorrhages throughout the viscera.

Other discussions include notes on a visit to Papua and New Guinea, Australia's contribution to world food problems, development of a decentralized abattoir, industrial aviation with reference to transport of beef from inland areas, the "water harvesting" project at McGarvie Smith Animal Husbandry Farm of the University of Sydney, and pasture improvement with special reference to trace elements.—H. McL. GORDON.

NEW ZEALAND. (1955). **Canterbury Agricultural College annual review for year ending 30th June 1955.** pp. 104. Christchurch, N.Z.: Simpson & Williams Ltd. [Items of veterinary interest pp. 89-94.] **2144**

Studies on VAGINAL PROLAPSE in ewes included the influence of diet, measurements of intra-abdominal pressure, the mechanism and control of changes taking place in the vagina, vestibule and vulva during the reproductive cycle, and the anatomy and histology of the genital organs.

At the request of some breeders of Friesian cattle, technical work was undertaken on artificial breeding of cows in New Zealand with "deep frozen" semen imported by air from the United Kingdom. PREGNANCY TOXAEMIA in ewes and FLEECE ROT were also studied.—D. S. RABAGLIATI.

GOLD COAST. (1955). **Report of the Department of Animal Health for the year 1953-54.** [HUTCHINSON, R. H.] pp. 11. Accra: Govt. Printer. 2s. **2145**

The numbers of livestock show a gradual increase owing to the enzootic diseases being under control.

Large scale RINDERPEST vaccinations in most districts were carried out without hostility. Lapinized virus vaccine was used. A few spasmodic outbreaks of ANTHRAX occurred but were soon controlled. RABIES is widespread and the reported cases give no guide to its extent.

Statistics are given of the number of animals slaughtered for food. There is a veterinary Laboratory responsible for the production of vaccines and for diagnosis.

—D. S. RABAGLIATI.

SIERRA LEONE. (1955). **Annual report of the Veterinary Department for the year 1954.** [BIRKETT, J. D.] pp. 9. Freetown: Govt. Printing Department. 1s. **2146**

Brucella abortus Strain 19 vaccine was used on all the cows at the Musaia Livestock Improvement Farm before the breeding season and a decrease in the abortion rate was observed. An outbreak of BOVINE CONTAGIOUS PLEURO-PNEUMONIA, involving 3 herds comprising 105 head, was dealt with by isolation and inoculation with a culture vaccine. TRYPANOSOMIASIS in pigs, caused mostly by *T. simiae*, and the policy for its control are discussed. For the first time since 1949 no cases of RINDERPEST in cattle were reported during the year and between January and June 42,565 cattle were inoculated—34,438 with wet lapinized virus and 8,127 with dry lapinized virus. Vaccination of 152 dogs against RABIES was carried out; and 22,003 fowls were inoculated against NEWCASTLE DISEASE with Lederle avianized vaccine.

—T.E.G.R.

COLONY OF TRINIDAD AND TOBAGO. (1955). **Administration report of the Director of Agriculture for the year 1954.** pp. 98 Trinidad, B.W.I.: Govt. Printing Office. $1.20. [Items of veterinary interest pp. 50-73.] **2147**

The most troublesome disease was PARALYTIC RABIES (bat transmitted). During July it assumed serious proportions and took heavy toll, principally amongst cattle. Deaths are estimated to have been in the region of 400. Brain tissue vaccine was used up to July, but was replaced, for cattle, by avianized modified live vaccine. During 1953, 4,508 animals of various herds were vaccinated. Some stock-owners are averse to the use of the vaccine, but at the height of an outbreak the demand is high.

Tuberculin testing showed a percentage of 0·6 of reactors in dairy cows.

The Veterinary Laboratory examined 27,160 specimens and carried out research into CHRONIC RESPIRATORY DISEASE in fowls and field trials of live virus avianized RABIES vaccine on farm livestock other than cattle, a BRUCELLOSIS survey, studies on parasitology and so on. The remainder of the report deals with animal husbandry.—D. S. RABAGLIATI.

BECHUANALAND PROTECTORATE. (1955). **Annual Report of the Veterinary Department for the year 1954.** [ROE, J. E. R.] pp. 45. **2148**

Fencing erected to keep out game from FOOT AND MOUTH DISEASE infected areas has been maintained.

BOTULISM AND APHOSPHOROSIS continued to be a cause of heavy losses. Not all cattle owners availed themselves of a vaccine or of bone meal available as a feeding supplement. More use was made of CALF PARATYPHOID vaccine and better calf husbandry also reduced the losses. Regular dipping gave better results in eradication of STREPTOTHRICOSIS. Compulsory vaccination against ANTHRAX was applied to 1,062,977 cattle and 1,357 sheep and goats. In four outbreaks of ANTHRAX there were 96 deaths. Free vaccination against BLACKLEG was given to 203,667 cattle. Records show that 2,705 cattle died from the disease. Free vaccination against *Brucella abortus* infection was given to all heifers at the time they received BLACKLEG vaccine.

Losses from TRYPANOSOMIASIS occur particularly in the dry season when grass is scarce and the weather is cold. 13,214 cattle passing through the quarantines were treated with antrycide.

HEARTWATER caused heavy losses. It is the only tick-borne disease mentioned. RABIES is endemic in the Northern Protectorate. Thirty animals died from the disease and 532 were destroyed. 1,866 dogs were vaccinated. There were 138 deaths from AFRICAN HORSESICKNESS. 1,508 animals were immunized.

HELMINTHIASIS is a major cause of losses among all young animals. Deaths reported were:— cattle 603, sheep and goats 6,479, and two foals.

MALIGNANT CATARRH was transmitted from herds of wildebeest to cattle; 94 deaths were recorded.

Wild carnivora killed 3,138 cattle, 6,791 sheep and goats, and three horses. PLANT POISONING accounted for the death of over 800 animals. CHEMICAL POISONING caused

911 deaths, mainly at dipping. 3,008 cattle, 5,772 small stock and 13 equines died from unknown causes. Reference is also made to the physical damage caused to livestock by Buphaga birds, which are protected under the Game Laws.—J. A. GRIFFITHS.

NYASALAND PROTECTORATE. (1955). **Annual Report of the Veterinary Department for the year ended 31st December, 1954.** [ASPINALL, K. W.] pp. 39. Zomba, Nyasaland: Govt. Printer. **2149**

EAST COAST FEVER is endemic in the Northern Province; outbreaks occurred in the Central Province and two cases were diagnosed in the Southern Province in cattle just brought down from the Central Province. In the Southern Province all the cases of TRYPANOSOMIASIS were due to *T. vivax* and many were transmitted by biting flies other than tsetse fly. In the Northern and Central Provinces there has been in some places a decrease in the incidence of the disease and in a few places there has been a recession of the tsetse fly. Some of the measures applied appear to be giving results—clearing of trees and undergrowth and also the use of fly repellent in the dipping tanks' contents. Dimidium bromide was used in the treatment of 1,068 cases.

BLACKLEG is confined to certain endemic areas in the Central Province. 8,575 cattle were vaccinated. TUBERCULOSIS had become widespread in the Southern Province. With the co-operation of European settlers the disease had been brought under control by the slaughter of infected animals. In the African areas TB. was widespread in the Mzimba district.

There were 41 confirmed cases of RABIES. Dogs must be vaccinated when kept in townships: 1,228 dogs were vaccinated. The cost of the vaccine is prohibitive for Africans.

There are epidemic centres of DEMODECTIC MANGE. Infected animals are slaughtered and the hides destroyed.

There were only five cases of STREPTOTHRICOSIS in two herds.

LIVER FLUKE INFESTATION in cattle is an important cause of loss; 40% of livers are condemned.

ARSENICAL POISONING occurred, and some pigs died from COAL TAR POISONING.

—J. A. GRIFFITHS.

BOOK REVIEWS

—. (1954). **Recent developments in cell physiology. Proceedings of the Seventh Symposium of the Colston Research Society held in the University of Bristol, March 29th-April 1st, 1954.** [Edited by: KITCHING, J. A.] pp. x+206. London: Butterworths Scientific Publications. (New York: Academic Press, Inc.) 40s. **2150**

Biological research in all its forms inevitably leads to a consideration of some property of individual cells, however specialized these may be. This is true for all forms of medical and veterinary science; consequently a book such as this, in which many aspects of cytology are discussed by men who are investigating one or another phase of cellular activity, is refreshing and enlightening to read.

Four papers deal with the postulated structure of biological membranes and with the transport of simple inorganic ions and water through them. This subject is rapidly developing and is of fundamental importance to all phases of physiology and biochemistry. The section starts with a theoretical discussion of membrane structure. The important contributions made by the Zoophysiological Laboratory of Copenhagen are clearly explained by Professor Ussing, while other papers deal with cholinesterase activity in sodium chloride transport and the ionic permeability of nerve fibres. The permeability properties of cells are likely to have considerable bearing on many of the problems of animal disease.

Four papers are concerned with metabolism: the synthesis of amino acids and amides in plants; the biosynthesis of pentoses and their incorporation into mononucleotides; the deoxynucleic acid in gametes and embryos; and the nuclear control of enzymatic activities. This section, and particularly the last paper of the four, makes a valiant attempt to reconcile the morphology of the cell with its biochemical properties. Any move which helps the biochemist to realize that morphology has a meaning is well worth while; similarly, any attempt to define, in precise chemical terms, the activity of structures which the biologist has observed for a hundred years or more is stimulating.

The plan of the symposium becomes less well defined in the second half. A long paper on the cell divisions of early development is followed by a study on the regeneration of

planarians after varying degrees of mutilation.

Finally, several papers follow on various factors influencing cell division of various organisms in culture and the symposium ends on the anticlimax of "Suction in Suctoria"—a subject that bears little relation to any other under discussion in this book.

Whatever speciality the reader may have he will find some paper that is interesting. The first eight papers are of especial interest to physiologists and biochemists. Bacteriologists and protozoologists will find the later ones more interesting.

This book should be included in any library that deals with veterinary matters.

—A. T. PHILLIPSON.

HOFFMANN, G. [Dr. med vet. habil.] (1955). Topographischer und zytologischer Atlas der Medulla oblongata von Schwein und Hund. **[Topographical and cytological atlas of the medulla oblongata of the pig and the dog.]** pp. 166. Berlin: Deutsche Akademie der Landwirtschaftswissenschaften. DM 34. **2151**

The atlas is based on serial sections of the brain stem of four dogs and three pigs. Photographs of representative slides are given with explanatory drawings to show (1) specific cell areas, (2) fibre areas. This is followed by a description of the nuclei found in the brain stem, a review of previous work and an account of the author's own findings. There are 400 references and about 30 art plates of cells from specific nuclei.—R. N. SMITH.

—. (1955). **Shock and circulatory homeostasis. Transactions of the Fourth Conference, December 6, 7, and 8, 1954, Princeton, N.J.** [Sponsored by the Josiah Macy, Jr. Foundation.] [Edited by: GREEN, H. D.] pp. 291. New York: Josiah Macy, Jr. Foundation. $5. **2152**

These transactions follow the pattern of the third conference on shock and circulatory homeostasis [*V.B.* **25,** 1231]. There are five papers on the physiology of the peripheral, mesenteric, splanchnic, pulmonary, aortic and coronary circulation in human beings or laboratory animals.—R.M.

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review.]

BOURDELLE, E., BOURLIÈRE, F., DEKEYSER, P.-L., DOLLFUS, R.-P., FRECHKOP, S., GRASSÉ, P.-P., DE BALSAC, H. H., FRADE, E., LAVOCAT, R., PETIT, J., PIVETEAU, J. VAUFREY, R., VALLOIS, H. & VIRET, J. (Contributors). (1955). Traité de zoologie, anatomie, systématique, biologie. Tome XVII. Fascicules I & II. Mammifères: les ordres: anatomie, éthologie, systématique. **[Treatise of zoology. Vol. XVII. Parts I & II. Mammals.]** pp. 1170 & 1173-2300. Paris: Vigot Frères. Fr. 11000 each.

CARPENTER, P. L. (1956). **Immunology and serology.** pp. viii+351. Philadelphia (& London): W. B. Saunders Co. 45s. 6d.

FRITZBØGER, E. (1955). Vejledning i kvaegets klovpleje. **[Guide to care of the hooves of cattle.]** pp. 85. Copenhagen: A/S Carl Fr. Mortensen. Da. Kr. 11.

LAPAGE, G. (1956). **Veterinary parasitology.** pp. xvi+964. Edinburgh (& London): Oliver & Boyd. 63s.

MCGRATH, J. T. (1956). **Neurologic examination of the dog with clinicopathologic observations.** pp. 181. London: Henry Kimpton. 37s. 6d.

PALLASKE, G. (1955). Pathologische Histologie. Leitfaden der Histopathologie für Studierende der Vet. Medizin und Tierärzte. **[Veterinary histopathology.]** pp. xvi+364. Jena: Gustav Fischer. DM 49.

ROBERTS, R. B., COWIE, D. B., ABELSON, P. H., BOLTON, E. T. & BRITTEN, R. J. (1955). **Studies of biosynthesis of *Escherichia coli*.** pp. xiv+521. Washington, D.C.: Carnegie Institution of Washington, Publ. No. 607. $2.50.

—. (1955 & 1956). **The comparative endocrinology of vertebrates. I. The comparative physiology of reproduction and the effects of sex hormones in vertebrates. II. The hormonal control of water and salt-electrolyte metabolism in vertebrates. Proceedings of a conference held at the Department of Zoology, University of Liverpool from 12 to 16 July, 1954. Memoirs of the Society for Endocrinology Nos. 4 and 5.** [Edited by: JONES, I. C. & ECKSTEIN, P.] pp. x+253 & ix+124. Cambridge: University Press. 50s. & 25s.

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LABORATORY TECHNOLOGIST (MAJ E) required by **KENYA GOVERNMENT** Veterinary Department either (a) on probation for pensionable employment or (b) on contract for one tour of 36/45 months in first instance with gratuity of 13½% of total basic salary and inducement pay drawn during contract. Salary scale (including inducement pay and present temporary allowance of 10%) £805 rising to £1,498 a year. Commencing salary according to experience up to £1,003 a year. Outfit allowance £40. Separation allowance payable. Free passages. Liberal leave on full salary. Candidates, not over 45 years of age, must be Associates of the I.M.L.T. and will be required either to supervise media room or to assist in laboratory aspect of field investigations. Write to the Crown Agents, 4 Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M3/34217/VC.

LABORATORY TECHNOLOGIST (MALE) required by **TANGANYIKA GOVERNMENT** Veterinary Department for Veterinary Laboratory duties and field work on animal disease problems. Appointment for one tour of 30-36 months in first instance. Salary scale (including inducement pay and present temporary allowance of 10%) £772 rising to £1,498 a year. Commencing salary according to experience. Gratuity 13½% of total substantive salary drawn. Outfit Allowance £45. Free passages. Liberal leave on full salary. Candidates, preferably single and preferably A.I.M.L.T., should be experienced in laboratory techniques and animal handling. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M3/35063/ VC.

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   C. A. Hoare, *Wellcome Laboratories of Tropical Medicine, London.*

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   K. L. Blaxter & Rosemary F. McGill, *Hannah Dairy Research Institute, Scotland.*

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